80-432

No. ———

Supreme Court, U. S.
FILED
SEP 18 1980
MICHAEL RODAK, JR., CLERK

IN THE

Supreme Court of the United States

OCTOBER TERM, 1980

CITY OF NEWARK, a municipal corporation, CITY OF ELIZABETH, a municipal corporation, ESTHER G. BERTONI, LOUELLA DeVITA, LOIS BERTONI, LOUIS B. BERTONI; ESTHER G. BERTONI, STEPHEN DUDIAK and ESTELLE SMITH, Trustees under the Last Will and Testament of LOUIS P. BERTONI for the Benefit of LOUELLA DeVITA, LOUIS B. BERTONI and LOIS BERTONI; MARION BOSCIA; THE ESTATE OF DAVID COLEMAN; VINCENT P. MAZZOLA; SARA TACCETTA; ANTHONY TACCETTA, JR., BARBARA TACCETTA SANTANGELO and FRANK STAMATO, partners trading as C & S DEVELOPMENT COMPANY; NEW JERSEY LAND TITLE INSURANCE ASSOCIATION, a New Jersey corporation,

Petitioners,

vs.

NATURAL RESOURCE COUNCIL IN THE DEPARTMENT OF ENVIRONMENTAL PROTECTION, as the tideland agent of the State of New Jersey; NAVIGATION BUREAU OF THE DIVISION OF MARINE SERVICES IN THE DEPARTMENT OF ENVIRONMENTAL PROTECTION, as the agent designated by N.J.S.A. 13:1B-13.2 for the performance of title studies and surveys of the meadowlands throughout the State of New Jersey; WILLIAM T. CAHILL, Governor of New Jersey, GEORGE F. KUGLER, JR., Attorney General, ROBERT J. FALCEY, Acting Secretary of State, WALTER WECHSLER, State Comptroller, WILLIAM E. MARFUGGI, State Treasurer, and EDWARD KILPATRICK, Acting Commissioner of Education, as the Trustees for the Support of Public Schools designated by N.J.S.A. 18A:56-1; and THE STATE OF NEW JERSEY,

Respondents.

PETITION FOR A WRIT OF CERTIORARI TO THE SUPREME COURT OF NEW JERSEY

APPENDIX TO PETITION FOR A WRIT OF CERTIORARI

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ADDENDUM "A"

SUPREME COURT OF NEW JERSEY

SEPTEMBER TERM, 1979

No. M-935

CITY OF NEWARK, et al.,

Plaintiffs-Movants,

vs.

NATURAL RESOURCES COUNCIL, etc., et al.,

Defendants-Respondents.

ORDER OF THE SUPREME COURT OF NEW JERSEY DATED JUNE 24, 1980 DENYING PETITION FOR REHEARING

(Filed June 25, 1980)

This matter having been duly presented to the Court, and no member of the Court having moved, the petition for rehearing is dismissed.

WITNESS, the Honorable Robert N. Wilentz, Chief Justice, at Trenton, this 24th day of June, 1980.

/s/ Stephen W. Townsend
STEPHEN W. TOWNSEND
Clerk

A TRUE COPY

/s/ Stephen W. Townsend
STEPHEN W. TOWNSEND
Clerk
/tsg

ADDENDUM "B"

SUPREME COURT OF NEW JERSEY

SEPTEMBER TERM, 1979

No. A-101

CITY OF NEWARK, a municipal corporation, CITY OF ELIZABETH, a municipal corporation, ESTHER G. BERTONI, LOUELLA DEVITA, LOIS BERTONI, LOIS B. BERTONI; ESTHER G. BERTONI, STEPHEN DUDIAK and ESTELLE SMITH, Trustees under the Last Will and Testament of LOUIS P. BERTONI for the Benefit of LOUELLA DEVITA, LOUIS B. BERTONI and LOIS BERTONI; MARION BOSCIA; THE ESTATE OF DAVID COLEMAN; VINCENT P. MAZZOLA; SARA TACCETTA; ANTHONY TACCETTA, JR., BARBARA TACCETTA SANTANGELO and FRANK STAMATO, partners trading as C & S DEVELOPMENT COMPANY; NEW JERSEY LAND TITLE INSURANCE ASSOCIATION, a New Jersey corporation,

Appellants,

vs.

NATURAL RESOURCE COUNCIL IN THE DEPARTMENT OF ENVIRONMENTAL PROTECTION, as the tideland agent of the State of New Jersey; NAVIGATION BUREAU OF THE DIVISION OF MARINE SERVICES IN THE DEPARTMENT OF ENVIRONMENTAL PROTECTION, as the agent designated by *N.J.S.A.* 13:1B-13.2 for the performance of the title studies and surveys of the meadowlands throughout the State of New Jersey; WILLIAM T. CAHILL, Governor of New Jersey, GEORGE F. KUGLER, JR., Attorney General, ROBERT J. FALCEY, Acting Secretary of State, WALTER

WECHSLER, State Comptroller, WILLIAM E. MARFUGGI, State Treasurer, and EDWARD KILPATRICK, Acting Commissioner of Education, as the Trustees for the Support of Public Schools designated by *N.J.S.A.* 18A:56-1; and THE STATE OF NEW JERSEY,

Respondents.

OPINION AND JUDGMENT OF THE SUPREME COURT OF NEW JERSEY DATED MAY 15, 1980

Argued February 4, 1980—Decided May 15, 1980.

On certification of the Superior Court, Appellate Division.

John R. Weigel argued the cause for appellants.

Elias Abelson, Assistant Attorney General, argued the cause for respondents (*John J. Degnan*, Attorney General of New Jersey, Attorney; *Stephen Skillman*, Assistant Attorney General, of counsel).

The opinion of the Court was delivered by SCHREIBER, J.

This case concerns the long-standing and continuing dispute over claims to the ownership of New Jersey's tidally-flowed lands. It is before us as an appeal from an Appellate Division decision upholding the validity of certain claims maps prepared by the State depicting its purported ownership of property in the Hackensack and Newark-Elizabeth meadowlands.

The maps in question were prepared by the Natural Resource Council (NRC) of the State Department of Environmental Protection (DEP) pursuant to *N.J.S.A.* 13:1B-

13.1 *et seq.* That statute directed the NRC to undertake title studies and surveys of the State's meadowlands to determine what portions were state-owned. It was a response to our decision in *O'Neill v. State Highway Dept.*, 50 *N.J.* 307, 320, 323 (1967), where we held that the State owns in fee simple all lands flowed by the tide up to the mean high water line, and exhorted the State "[a]s a matter of good housekeeping, [to] do what is feasible to catalogue [its] far flung [tidelands] holdings. . . ." [1]

Following the NRC's adoption of the maps, the appellants Newark and Elizabeth, along with the New Jersey Land Title Insurance Association, Inc., and several named individuals and estates whose titles were threatened by the sovereign ownership claims reflected in the maps, sought to invalidate the maps on the ground that the NRC's mapping methodology failed to comply with the requirements set out in *N.J.S.A.* 13:1B-13.3.

In mapping the Hackensack Meadowlands, the NRC relied on a novel technique of biological delineation instead of using the traditional tidal mapping program of tide gauging to locate mean high water points in the marsh and sur-

---

1. *O'Neill*, defined the mean high water line as "the line formed by the intersection of the tidal plane of mean high tide with the shore." 50 *N.J.* at 323. The mean high tide was in turn defined as "the medium between the spring and near tides"—the average of all high tides over a period of 18.6 years. *Id.* at 323-324.

In defining State ownership in terms of areas lying below mean high tide, the *O'Neill* Court was careful to add that the State cannot expand its ownership claims by undertaking artificial works, like ditching, which "enable [ ] the tide to ebb and flow on lands otherwise beyond it." *Id.* at 324. Similarly, the private owner cannot today enlarge his holdings by excluding the tide. Prior to the two-step repeal of the "Wharf Act," L. 1851, p. 335 (in 1869 as to certain tidal lands, L. 1869, p. 1017, and in 1891 as to the remaining lands, L. 1891, p. 216), the riparian owner had a revocable license to fill-in and thereby acquire a fee simple to lands down to mean low water. *O'Neill*, 50 *N.J.* at 324-325.

veying to connect those points into a mean high water line. The NRC method involved the analysis of color infrared aerial photographs of the meadows. This procedure was premised on the theory that there is a correlation between the various spectral reflectance patterns of *Phragmites communis*, a reedlike grass which grows extensively in the Hackensack meadows, and the extent of tidal inundation where the plants exist. Certain color patterns are said to indicate areas which are regularly flowed by the tide, while other patterns indicate areas not susceptible to tidal flow. The data from the biological delineation was then supplemented with information from earlier tide gauging and from a number of historical sources.

In mapping the mean high water line in the Newark-Elizabeth meadows, the NRC again rejected tide gauging and surveying, this time in favor of historical sources which depicted the location of tidal creeks and streams in the meadowlands prior to their development. These locations were then adjusted for tidal overflow on the basis of data describing the overflow in the Tuckerton meadows in southern New Jersey. NRC claimed that reliance on historical sources was necessary given the extensive filling and development of the Newark/Elizabeth meadows, where Newark Airport, the Port of Newark/Elizabeth and an extensive network of highways are now located.

In addition to challenging the mapping methodology used, the appellants also argued that the State's attempt to claim sovereign ownership of tidally-flowed, but non-navigable, interior meadowlands violated principles of state law and the Due Process Clause of the Fourteenth Amendment. Finally, they asserted that these claims of title should be barred by the application of principles of estoppel.

Faced with the appellants' challenge, the Appellate Division remanded the matter to Judge Trautwein in the Law

Division, for the purpose of creating an adequate administrative record, *R.* 2:5-5(b), and for proposed findings of fact and conclusions of law. After hearing nearly nine months of testimony (the record consists of more than 3,000 pages of transcript and 591 exhibits), Judge Trautwein filed his findings in August 1978. He concluded that the maps certified by the NRC had been promulgated and published in accordance with *N.J.S.A.* 13:1B-13.4, and represented a reasonable implementation of the mandated duty to prepare such maps in accordance with *N.J.S.A.* 13:1B-13.2 and 13.3. Implicit in this conclusion was the finding that the methodology used by the NRC in mapping conformed with those legislative directives.

The Appellate Division affirmed Judge Trautwein's findings in an unreported *per curiam* decision. The court reasoned that, notwithstanding the arguable merits of the appellants' challenge, there was competent expert testimony and evidence in the record to support the delineation program adopted by the NRC, as well as its decision to forego a traditional mapping program based on tide gauging and surveying. Given the presumption of validity of the NRC's mapping as administrative action pursuant to an express statutory directive, the conflicting evidence in the record and the technical nature of the subject matter, the court felt compelled to affirm Judge Trautwein's findings. The court concluded that its limited scope of review precluded it from choosing between the contending views of experts on debatable subject matter. We granted plaintiffs' petition and the Attorney General's cross-petition for certification. 81 *N.J.* 335 (1979).

Enacted in 1969, *N.J.S.A.* 13:1B-13.2 directed the NRC "to undertake title studies and surveys of meadowlands throughout the State and to determine and certify those lands which it [found to be] State owned lands." Upon

completion of each study and survey, the council was to publish a map portraying the results and clearly indicating those areas claimed by the State. *N.J.S.A.* 13:1B-13.4. In making those studies and preparing those maps, the NRC was directed "to take into account" four categories of source material:

(1) the mean high water line was established by the United States Coast and Geodetic Survey,

(2) the nature of the meadowlands' vegetation,

(3) artificial changes in land or water elevations, and

(4) such other historical or scientific data which, in the opinion of the council, are relevant in determining whether a parcel of land is now or was formerly flowed by mean high tide. [*N.J.S.A.* 13:1B-13.3].

The first area to be surveyed was the Hackensack Meadowlands and the maps were to be completed by July 1969. *N.J.S.A.* 13:1B-13.2.

The DEP's initial response to this mandate was the issuance of its "Gray and White" map in January 1970, which depicted the State's purported ownership claims in the Hackensack meadowlands. This map was suppressed by Judge Trautwein in the Law Division in September 1971. DEP's Office of Environmental Analysis immediately undertook a second effort. It culminated in the NRC's publication and certification of the 36 Hackensack meadowlands base maps with claims overlays and the single Newark-Elizabeth base map with its claims overlay. Appellants challenge the accuracy of these documents.

Regarding the Hackensack claims maps, the appellants contend that the agency failed to adhere to the four-part

guidelines in *N.J.S.A.* 13:1B-13.3. They allege that the list of source materials in that statutory section evidences a legislative desire that the agency undertake a mapping program based on broad and balanced data. They assert that the NRC failed to employ a balanced program utilizing tide gauging and surveying to determine the current line of mean high water, and failed to avail itself of all historical sources to depict areas formerly flowed by the tide. Instead, the NRC relied almost entirely on a single, previously untested biological program which was at best capable of depicting tidally-flowed areas rather than a mean high water line.

In addition, they contend that the biological delineation program was itself unreliable and theoretically unsound. Their experts questioned the validity of the alleged correlation between *Phragmites'* spectral reflectance patterns and the extent of tidal flow. Some testimony indicated that reflectance patterns were inherited characteristics with no known environmental cause. Other testimony indicated that reflectance patterns were influenced by many environmental factors other than tidal flow, including wind, season, and water and soil quality. The experts criticized the NRC's mapping program for ignoring these factors. The correlation between tidal flow and spectral reflectance was allegedly based on inaccurate field work and inadequate sampling. Experts noted inconsistencies between the correlation data supporting the maps and the information obtained in the pilot project.

In challenging the validity of the Newark-Elizabeth map, the appellants attacked the State's claims to the ten feet extending from the banks of the now filled-in creeks and streams as they appeared in the historical source material. The NRC based its claim of the additional ten feet on an alleged resemblance between the present tidal overflow

in Little Egg Harbor in Ocean County and in the creeks in the Newark-Elizabeth meadows as they appeared prior to filling. The appellants' experts criticized the agency for failing to compare the vegetation, soil, subsoil and drainage of the two areas prior to the extrapolation. They also questioned the agency's almost total reliance on a single 1890 map and its disregard of other available surveys in depicting formerly tidally-flowed areas.

Finally, appellants argue that the Legislature intended the council to produce only highly accurate maps and that the resulting mean high water lines must be carefully scrutinized. This is premised on the belief that the State's claims maps will cast doubt on the validity of the titles of numerous private owners and render unmarketable a sizeable area of land pending the piecemeal resolution of the State's claims in individual quiet title suits. The appellants' position is that the Legislature obviously wished to avoid the unnecessary slander of title and its adverse effect on efficient land use. Thus, it must have intended the maps to be of such precision that they would likely survive a quiet title dispute.

In adjudicating the appellants' claims, we note at the outset the strong presumption of reasonableness that an appellate court must accord an administrative agency's exercise of statutorily delegated responsibility. The scope of judicial review in cases of this kind was recently enunciated by Justice Pashman in *New Jersey Guild of Hearing Aid Dispensers v. Long*, 75 *N.J.* 544, 562-563 (1978), where he emphasized that "courts are not free to substitute their judgment as to the wisdom of a particular administrative action for that of the agency so long as that action is statutorily authorized and not otherwise defective because arbitrary or unreasonable." Quoting from this

Court's earlier opinion in *Flanagan v. Civil Service Dept.*, 29 *N.J.* 1, 12 (1959), he explained that:

> If there is *any fair argument* in support of the course taken [by the agency] or *any reasonable ground for difference of opinion* among intelligent and conscientious officials, the decision is conclusively legislative, and will not be disturbed unless patently corrupt, arbitrary or illegal. Doubts held by the court as to the wisdom of the administrator's decision do not alter the case . . . . [75 N.J. at 563; emphasis added].

See also *Consolidation Coal Co. v. Kandle,* 105 N.J. Super. 104, 118 (App. Div. 1969), *aff'd o.b.* 54 N.J. 11 (1969).

This presumption of reasonableness is even stronger here as the agency has been delegated discretion to determine the specialized and technical procedures for its tasks. See *Close v. Kordulak Bros.*, 44 N.J. 589, 599 (1965) (in the case of agency review due regard must be given to an agency's expertise where such expertise is a pertinent factor); *Shahmoon Indus., Inc. v. N.J. Dept. of Health,* 93 N.J. Super. 272, 282-283 (App. Div. 1966), *cert. den.* 49 N.J. 358 (1967) ("where an administrative agency is concerned with technical matters the courts will give weight to its presumed expertise in reviewing its decisions" [citations omitted]).

In addition, we note that the mapping directive itself is broadly worded. While *N.J.S.A.* 13:1B-13.3 lists four specific types of source material, it directs the agency to take them "into account", but does not require that any one of them form the basis of the mapping program. Broad discretion is vested in the NRC for it is authorized to use "such other historical or scientific data" which, in its opin-

ion, are relevant. Thus drafted, the statute does not foreclose a program like the NRC's based primarily on vegetation and biological analysis and secondarily on historical sources and existing tidal data, as well as on information obtained from tide gauging and surveying.[2]

Moreover, the evidence indicated that the NRC through the OEA had indeed "taken into account" the source material set out in *N.J.S.A.* 13:1B-13.3. Although it was conceded that no new tide gauging was undertaken, the NRC made use of the existing mean high water data of the United States Coast and Geodetic Survey. Its experts contended that no new tide gauging was ordered because of the technical difficulties and inaccuracies inherent in tide gauging in a marsh. In addition, NRC consulted many of the historical sources and considered the impact of numerous artificial changes to which the appellants referred. It exercised its delegated discretion in choosing not to incorporate some historical materials—because they depicted mean low water instead of mean high water or because their lines were drawn for navigational purposes and thus failed to extend into interior meadows. Various artificial changes were considered, but not incorporated, because the effect of man-made alterations was viewed as too speculative absent verifiable historical data. Finally, the nature of the meadowlands vegetation was considered as part of the biological delineation program, a program which was certainly authorized by the statute's broad invitation to have the agency take into account such other scientific data which, in its opinion, were relevant.

---

2. With respect to the question of precision, the statute is conspicuously silent. Given the six-month time constraint on the preparation of the maps, it is quite reasonable to read the statute as a mere directive to catalogue the State's claim quickly so they could later be tested in individual quiet title suits.

With respect to the validity of the biological delineation theory and the quality of the scientific method itself, evidence was adduced suggesting that this spectral reflectance theory, validated by one of appellants' experts and subjected to extensive field analysis for verification, had been confirmed in the biological literature. With respect to the agency's claim of ten-foot parcels beyond the banks of depicted watercourses, in the Newark-Elizabeth meadows, a joint study conducted by the National Ocean Survey and the State demonstrated the similarity between the Tuckerton and Newark-Elizabeth meadows prior to their development.

Thus, the evidence adduced indicates only a difference of opinion between the appellants' and the NRC's experts. Mindful of the presumptive validity of the agency's actions and the fact that no titles are being quieted here, we see no basis for upsetting the factual findings of Judge Trautwein. Where "there is any fair argument in support of the course taken [by the agency] or any reasonable ground for difference of opinion among intelligent . . . officials, the decision . . . will not be disturbed unless patently corrupt, arbitrary, or illegal." *Flanagan v. Civil Service Dept.*, 29 N.J. at 12. Where "a subject is debatable, the agency determination must be upheld," because a court would usurp the legislative body if it attempted to determine the results of the debate. *United Hunters Ass'n of N.J., Inc. v. Adams*, 36 N.J. 288, 292 (1962). While the judiciary will interfere where the determination is arbitrary, the record in this case discloses genuinely debatable issues. The Appellate Division's determination that the NRC's maps represent a reasonable implementation of the duty mandated in *N.J.S.A.* 13:1B-13.2 and 13:1B-13.3 is therefore *affirmed*

Finally, we note that the impact of these maps is limited. They set forth the State's claims. This is *not* a quiet title suit and these maps are *not* being measured against claims of private ownership in this case. Although the State may seek to introduce these maps as evidence of its sovereign ownership claims in later quiet title suits, the sole issue here concerns whether the maps comply with the guidelines established in Title 13. We cannot and do not find here that the State's claims are legally warranted in whole or in part as against other parties asserting ownership. We do not broach the question of what evidentiary effect these maps should be given in subsequent quiet title suits involving private owners. The question remains open as to whether they will satisfy either the burden of production or persuasion which the State may have in those cases. See *Warner v. Smith*, 115 N.J. Eq. 572, 573 (E. & A. 1934); *N.J.S.A.* 2A:62-1, 2A:62-2.

II

Appellants also contend that the NRC's maps must be suppressed because the State's title is limited to waterways which are both tidally-flowed and navigable. Appellants rely for this proposition on *State Land Bd. v. Corvallis Sand and Gravel Co.*, 429 U.S. 363, 97 S. Ct. 582, 50 L.Ed.2d 550 (1977).

The reliance is misplaced. The issue in *Corvallis* concerned the title to land underlying the Willamette River, a navigable stream, in Oregon. Corvallis Sand and Gravel Co. had been digging in the riverbed for 40 or 50 years without the state's permission. Oregon instituted an action in the state courts seeking damages and immediate possession. Each party was partially successful and the Supreme Court granted petitions for certiorari. The federal question centered about the title to the riverbed when

Oregon became a state, having had a prior territorial status. Subsequent to statehood, the course of the Willamette River had been altered by a severe flood. The Court was faced with the question whether federal or state law governed the effect of the changed course. *Corvallis* held that the delineation of the riverbed at the time of Oregon's admission into the Union would be determined by federal law, but that state law would govern the effect of subsequent changes in the watercourse.

The Supreme Court spoke in terms of navigability as the test for ownership only because it was the navigable character of the watercourse on which the state based its claim of sovereign ownership in *Corvallis*. The Supreme Court did not hold that navigability was prerequisite to sovereign ownership in all cases. Nor did it foreclose the assertion of sovereign ownership on the basis of land being tidally-flowed rather than submerged beneath navigable waters.

When viewed in their proper historical perspective, the navigability and tidal tests are clearly separate criteria. In England, all the " 'land below high-water mark belonged to the British nation, and was vested in the king, as head thereof, in trust for the public. It was vested by the Revolution in the sovereignty of the state, and [was] held under the guardianship of the Legislature.' " *Bailey v. Driscoll*, 19 N.J. 363, 367 (1955), quoting *Ross v. Mayor of Edgewater Borough*, 115 N.J.L. 477, 483 (Sup. Ct. 1935), aff'd o.b. 116 N.J.L. 447 (E. & A. 1936), *cert den.* 299 U.S. 543, 57 S. Ct. 37, 81 L.Ed. 400 (1936); citations omitted. Sovereign ownership was based on tidal flow and the sovereign had no title to lands beneath non-tidal rivers. In England, non-tidal watercourses were, with a few small exceptions, non-navigable and public interest in unobstructed commerce was never threatened by the limiting

character of a tidal test. See *Illinois Central R. Co. v. Illinois*, 146 U.S. 387, 436,—S. Ct.—, —, 36 L.Ed. 1018, 1036-1037 (1892).

In this country, however, many interior rivers are navigable but non-tidal, and the interest in unobstructed commerce was threatened by the possibility of private ownership of these navigable waters. Thus, in the nineteenth century the United States Supreme Court saw fit to create a navigability basis for sovereign ownership separate from the tidal test. See *Barney v. Keokuk*, 94 U.S. 324, 24 L.Ed. 224 (1887). In so doing the Court did not reject the tidal standard as the basis for sovereign ownership of land beneath tidally-flowed, but non-navigable waters.

Sovereign ownership based on tidal flow, irrespective of navigability, has been and continues to be the rule in this State. See *O'Neill v. State Highway Dept.*, 50 N.J. 307, 322-323 (1967); *McCarter v. Hudson County Water Co.*, 70 N.J. Eq. 695, 720 (E. & A. 1906), *aff'd* 209 U.S. 349, 28 S. Ct. 529, 52 L.Ed. 828 (1908); *Cobb v. Davenport*, 32 N.J.L. 369, 378-380 (Sup. Ct. 1867). Judge Goldmann, in *Schultz v. Wilson*, 44 N.J. Super. 591, 603 (App. Div. 1957), *certif. den.* 24 N.J. 546 (1957), after an extensive survey of the New Jersey law, concluded that "the test to be followed in determining State sovereignty over submerged lands in New Jersey is the tidal [and not the navigability] test." We continue to adhere to that firmly established principle.

III

Lastly, appellants seek to estop the State from asserting sovereign ownership of the interior portions of the Hackensack and Newark-Elizabeth meadows. They claim that the State has always treated those meadowlands as above the mean high water line, that it did not assert sovereign

ownership until the passage of Title 13 and that property owners have relied on the private character of these lands.

We rejected a comparable argument in *O'Neill*. Writing for an unanimous court in that case, Chief Justice Weintraub cautioned that "neither estoppel nor laches is applied against the State to the same extent as against private parties." *O'Neill v. State Highway Dept.*, 50 N.J. at 319; citations omitted. See *Abbott v. Beth Israel Cemetery Ass'n*, 13 N.J. 528, 548 (1953). He emphasized that the party seeking the benefit of estoppel has the burden of establishing that an officer of the State, conscious of the State's true interest and aware of the private owner's misapprehension, stood by while the private owner acted in detrimental reliance. *O'Neill v. State Highway Dept.*, 50 N.J. at 318. The mere failure of the State "to exercise dominion over its properties or somehow to give public notice of its many holdings" does not operate to divest the State of title. *Id.* at 320. Although the State may well be in a better position than a third person to know the extent of its sovereign ownership, the vast extent of land flowed by the tide and the obvious difficulty inherent in delineating ownership weigh against divestiture by estoppel.

Appellants' proofs are wanting. At most they have shown only a failure of the State to exercise dominion over the lands in question or to give public notice of its properties. Appellants stress the fact that in the State's administration of riparian grants, *N.J.S.A.* 12:3-1 *et seq.*, its maps of available lands seldom depicted areas beyond the banks of well-defined tidal watercourses. However, those maps cannot be said to constitute a disclaimer of title. They merely catalogue lands available for riparian grants and are not statements of ownership. The statutory dedication of

monies received from the sale of "lands belonging to this state now or formerly lying under water" to the support of public schools, *N.J.S.A.* 18A:56-5, and the constitutional prohibition of the use of that money for any other purpose, N.J. Const. (1947), Art. VIII, §IV, par. 2, further militate against interpreting the State's cataloguing of riparian grants as a disclaimer of title. In the absence of any showing that a State officer conscious of the State's interest stood by while the private owner acted in reliance thereon, the State's failure to claim tidally-flowed, interior meadowlands until the passage of Title 13 does not support an estoppel.

Affirmed. No costs.

Chief Justice Wilentz and Justices Sullivan, Clifford, Handler and Pollock join in this opinion.

ADDENDUM "C"

SUPERIOR COURT OF NEW JERSEY

APPELLATE DIVISION

A-3311-72

CITY OF NEWARK, a municipal corporation; CITY OF ELIZABETH, a municipal corporation; ESTHER G. BERTONI, et al; and NEW JERSEY LAND TITLE INSURANCE ASSOCIATION,

Appellants,

vs.

NATURAL RESOURCE COUNCIL in the DEPARTMENT OF ENVIRONMENTAL PROTECTION, STATE OF NEW JERSEY, et al.,

Respondents.

OPINION AND JUDGMENT OF THE SUPERIOR COURT OF NEW JERSEY, APPELLATE DIVISION, DATED MAY 24, 1979

Argued May 8, 1979—Decided May 24, 1979.

Before Judges Lora, Michels and Larner.

On appeal from the Natural Resource Council in the Department of Environmental Protection of the State of New Jersey.

Mr. John R. Weigel argued the cause for the appellants.

Mr. Elias Abelson, Assistant Attorney General, argued the cause for the respondents (Mr. John J. Degnan, Attorney General of New Jersey, attorney; Mr. Stephen Skillman, Assistant Attorney General, of counsel).

PER CURIAM:

This case is before the court as an appeal from the administrative determination of the Natural Resource Council in the Department of Environmental Protection (Council) certifying the areas of the Hackensack Meadowlands which it claims to be owned by the State. This was accomplished by the preparation of a series of photo maps with overlays pursuant to the directive of the Legislature in *N.J.S.A.* 13:1B-13.1 *et seq.*, which apparently represented a response to the suggestion of the Supreme Court opinion of *O'Neill v. State Highway Dept.*, 50 N.J. 307, 320 (1967), that

> As a matter of good housekeeping, the appropriate officers of the State should do what is feasible to catalogue the State's far-flung holdings
>
> . . . .

On the application of appellants to supplement the administrative record pursuant to the provisions of *R.* 2:5-5(b), this court entered an order directing the Assignment Judge of Bergen County or his designate:

> to conduct such proceedings and to make appropriate findings of fact and conclusions of law to be submitted to this court for determination of the following issues:
>
> (1) whether the maps published by respondent were prepared in accordance with the requirements of *N.J.S.A.* 13:1B-13.1 *et seq.* and specifically *N.J.S.A.* 13:1B-13.3, and were promulgated and adopted in accordance with the provisions of *N.J.S.A.* 13:1B-13.4.

This mandate was carried out by Judge Trautwein, Assignment Judge of Bergen County, who undertook to su-

pervise and conduct extensive hearings and motions in the procedural context of a trial-type proceeding.

The first determination made by him related to a finding by way of partial summary judgment dated March 6, 1975, that the initial mapping procedure utilized by the Council in designating as "hatched areas" those lands subject to a *possible* claim by the State, without a clear claim of ownership, was invalid because it failed to comport with the legislative mandate of *N.J.S.A.* 13:1B-13.4. See *Newark v. Nat. Resource Council in Dept. of Environmental Protection,* 133 N.J. Super. 245 (Law Div. 1974), *aff'd* 148 N.J. Super. 297 (App. Div. 1977), as modified by 152 N.J. Super. 458 (App. Div. 1977) pursuant to remand of the Supreme Court at 75 N.J. 32 (1977).

Thereafter, in purported compliance with the order for summary judgment, the Council proceeded to prepare new overlays depicting, among other data, all areas to which it claimed ownership on behalf of the State, including 100% ownership of the prior "hatched areas" and such lands as it acknowledged to be free of such ownership claims. On December 23, 1975 the court rejected this assertion of clear ownership of the "hatched areas" as depicted on the overlays as "arbitrary, capricious and unreasonable" and declared such claims to be null and void. The order of that date reiterated the duty of the Council to "demarcate the former mean high tide in the filled meadowlands of the State before it asserts an ownership claim to the said filled meadowlands" in accordance with the rule set down by the Supreme Court in *O'Neill v. State Highway Dept., supra.*

Ultimately, plenary hearings were held between March 8 and October 26, 1976 before the Assignment Judge wherein

the Council presented extensive proofs through expert testimony and reports as to the steps taken in the preparation of the maps attacked by appellants and the basis for the final claims to State-owned property reflected by those maps. Appellants in turn presented evidence relevant to their contention that the administrative decision on appeal was not in accord with the legislative mandate of *N.J.S.A.* 13:1B-13.1 *et seq.* and was arbitrary, capricious and unreasonable.

On August 23, 1978, the Assignment Judge, pursuant to the directive of this court, filed detailed and comprehensive "Proposed Findings of Fact and Conclusions of Law" in which he concluded that the maps certified by the Council were promulgated and published in accordance with *N.J.S.A.* 13:1B-13.4 and represented a reasonable implementation of the mandated duty of the Council to prepare such maps in accordance with *N.J.S.A.* 13:1B-13.2 and 13.3. Inherent in this conclusion is the finding that the mapping methodology and the cataloguing of the State's claims of ownership conform with the foregoing legislative directives and the criteria established in *O'Neill v. State Highway Dept., supra.* The judge also rejected appellants' assertion of estoppel on the part of the State as untenable factually and legally. See *O'Neill, supra,* 50 N.J. at 319-321.

We are satisfied that the "Proposed Findings of Fact and Conclusions of Law" filed by Judge Trautwein are fully warranted on the record before him. We therefore adopt the same as our own in supplementing the basis of our review of the administrative determination of the Council.

It is manifest that the major problem relating to the techniques utilized by the Council in the preparation of the maps in question is a matter subject to differing expert opinions; and the record amply demonstrates this divergence of views on the part of the experts produced by the opposing litigants. It is also apparent that the conventional method of land surveying is wholly unreliable and inappropriate for the purpose of identifying whether lands are now or were formerly flowed by mean high tide as a basis for the State's claims of ownership.

Under such circumstances, we cannot say that the biological and other corroborating methods adopted by the experts retained by the Council are arbitrary or unreasonable. These are techniques found to be preferable and most practical and reliable by well-qualified experts in the field. While other qualified experts hold contrary opinions, this court cannot undertake to determine which method is better or preferable. As long as the means and method selected by the administrative agency charged with the responsibility in this highly technical field of endeavor is reasonably supported by the record, our scope of review mandates the acceptance of its determination despite the conflict of expert opinions.

As pointed out by the Supreme Court in *United Hunters Assn. of N.J., Inc. v. Adams*, 36 N.J. 288 (1962):

> There was division of opinion within the agency's staff itself. The Council of necessity had to choose between contending views. The issue before us is not whether one theme has greater appeal than the other. If a subject is debatable, the agency determination must be upheld. Quite obviously, if we were to decide the underlying merits, we would

> thereby perform the administrative function itself. Upon that approach the court would become the legislative body. The judiciary can interfere with such a determination only when it is plainly demonstrated to be arbitrary. The most that here is revealed is that men can earnestly disagree. This being so, the Council alone bears the responsibility for decision. It is not for the judiciary to agree or disagree. See *In re Public Service Electric & Gas Co.*, 35 N.J. 358, 376 (1961); *Two Guys from Harrison, Inc. v. Furman*, 32 N.J. 199, 229 (1960); *Kozesnik v. Township of Montgomery*, 24 N.J. 154, 167 (1957). 36 N.J. at 292.

Our function in fact is more circumscribed in the context of the subject matter involved herein. The highly specialized and technical nature of surveying and mapping techniques applied to measurements of tides in marshlands demands that we defer to the agency which has far greater expertise, knowledge and resources to decide such difficult questions. The presumption of reasonableness must be accorded to the determination of the Council which has been granted broad discretion by the Legislature in carrying out its task. Appellants have failed to carry the heavy burden of showing that the Council's action herein was arbitrary or unreasonable.

We hasten to add, as did Judge Trautwein, that our decision merely affirms that the maps prepared by the Council in order to delineate the State's claims reasonably conform with the legislative directives of *N.J.S.A.* 13:1B-13.1 *et seq.* and the criteria of *O'Neill v. State Highway Dept., supra.* This decision, however, is not to be construed as a definitive finding that the State's claims are legally warranted in part or in whole as against other parties who may claim ownership. Such title contests will

have to be determined in existing or future quiet title actions wherein adverse claims will be appropriately adjudicated on the basis of evidence produced in those proceedings.

Affirmed.

A TRUE COPY

/s/ Elizabeth McLaughlin
ELIZABETH McLAUGHLIN
Clerk

ADDENDUM "D"

SUPERIOR COURT OF NEW JERSEY

PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW ENTERED BY THE SUPERIOR COURT OF NEW JERSEY, LAW DIVISION, BERGEN COUNTY, DATED AUGUST 23, 1978

CAL. NO. 98-0067
APPELLATE DOCKET A-3311-73

CITY OF NEWARK, *et al.*,

Appellant,

vs.

NATURAL RESOURCE COUNCIL IN THE DEPARTMENT OF ENVIRONMENTAL PROTECTION, *et als.*,

Respondents.

CIVIL ACTION—PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW

PROCEDURAL BACKGROUND

This action was commenced in the Appellate Division of the Superior Court where appellants sought to invalidate certain maps with claims overlays which purport to establish the State's ownership of meadowland property pursuant to *N.J.S.A.* 13:1B-13.1 *et seq.* and *O'Neill v. State Hwy. Dept.*, 50 N.J. 307 (1967).

The maps were promulgated by a State agency, the Natural Resource Council in the Department of Environmental Protection, hereinafter "Council". Hence, a challenge to such action was properly commenced in the Appellate Division. An administrative record susceptible of review by the Appellate Division was virtually nonexistent, at least in the form that would lend itself to such review. Hence, the Appellate Division remanded the matter to the Law Division of the Superior Court, Bergen County, to create an adequate administrative record and for proposed findings of fact and conclusions of law on the part of the trial judge.

For the sake of orderliness, the trial proceeded in the following fashion:

(1) The respondent Council proceeded first and presented proofs as to all steps followed in promulgating the maps under attack without cross-examination. This phase provides the Appellate Division with an administrative record and an administrative decision which forms the basis on which appellants mount their appeal.

(2) In order to accommodate the Appellate Division's directive that the judge supervise the construction of an administrative record and make proposed findings of fact and conclusions of law, the Court next permitted the appellants to create a record by live testimony, subject to cross-examination, of their contentions that the administrative decision of the Council referable to the promulgation and publication of the maps was not consistent with the requirements of *N.J.S.A.* 13:1B-13.1 *et seq.* and was in and of itself an arbitrary, capricious and unreasonable act.

(3) The last phase of the case afforded the State an opportunity to rebut the contentions of the appellants by live testimony subject to cross-examination.

These procedures generally followed that which is outlined in the pretrial order of the trial court, which forms part of the record.

INTRODUCTION—BRIEF OVERVIEW OF THE TIDELANDS PROBLEMS IN NEW JERSEY

As a result of the decision of the New Jersey Supreme Court in *O'Neill v. State Hwy. Dept.*, 50 N.J. 307 (1967), the Legislature responded with the enactment of *N.J.S.A.* 13:1B-13.1 *et seq.* The core issue presented in this appeal is whether or not the Council reasonably complied with the legislative mandate in said statute. *O'Neill* stated:

> The State owns in fee simple all lands that are flowed by the tide up to high-water line or mark. The high-water line or mark is the line formed by the intersection of the tidal plane of mean high tide with the shore. The mean (sometimes called 'ordinary') high tide is defined as the medium between the spring and the neap tides. *New Jersey Zinc & Iron Co. v. Morris Canal & Banking Co.*, 44 N.J. Eq. 398, 400-401 (Ch. 1888), aff'd. o.b. 47 N.J. Eq. 598 (E. & A. 1890); *Faulks v. Boro of Allenhurst*, 115 N.J.L. 456, 462 (E. & A. 1935). Mean high tide was stated in *Borax Consolidated, Ltd. v. City of Los Angeles*, 296 U.S. 10, 26, 56 S. Ct. 23, 31, 80 L.Ed. 9, 20 (1935), to be 'a mean of *all* the high tides.' [Emphasis supplied]. That definition is deemed to be 'more exact' in 1 *Shalowitz, Shore & Sea Boundaries* (1962), p. 96, and since the Coast and Geodetic Survey of the United States Department of Commerce, the acknowledged authority with respect to mean high tide readings, presumably utilizes *all* the high tides in preparing its data, we

accept the definition it believes to be more precise. We subscribe also to the view of *Borax* that the average to be used should be, if possible, the average of all the high tides over a period of 18.6 years (296 U.S. at p. 26-27, 56 S. Ct. at p. 31, 80 L.Ed. at p. 20).

The tidal boundary is then the line of the mean high tide upon the land. If the elevation of the mean high tide is known (here the litigants accept the figure of 2.89 feet over mean sea level at Sandy Hook, as established by gauge readings of the Coast and Geodetic Survey at Secaucus, directly across the river from the property here involved), the tidal boundary may be established by elevations taken on the land. In that event, evidence that land above that elevation is periodically covered by high tide would not suffice to prove it is tideland. This is not to say that all land below that elevation is tideland; the land must in fact be tide-flowed, and hence interior land which is below that elevation and which the mean high tide does not reach naturally is not tideland.

The State cannot acquire interior land by such artificial works as ditching which enables the tide to ebb and flow on lands otherwise beyond it. And so too the riparian owner cannot, today, enlarge his holdings by excluding the tide. At one time he could, by virtue of 'local custom', down to mean low water. This custom was accepted and sanctioned by the 'Wharf Act', L. 1851, p. 335. But the custom was deemed to give only a license revocable by the State, except as to lands already acquired by an exercise of it. *Stevens v. Paterson & Newark R.R. Co.*, 34 N.J.L. 532, 546 (E. & A. 1870). The Wharf Act was repealed and the local custom terminated as to cer-

tain tidal lands by L. 1869, c. 383, §3, p. 1018, and as to the remaining tidal lands in the State by L. 1891, c. 124, p. 216. The repealing statutes expressly stated they shall not be construed to restore any supposed right, usage, custom, or local common law, founded upon the tacit consent of the State or otherwise to fill in any land under water below mean high tide. See *N.J.S.A.* 12:3-4; *Bailey v. Driscoll, supra,* 19 N.J., at pp. 369-372. Thus lands below mean high water acquired by a riparian owner pursuant to the local custom prior to the effective date of the repealing statute applicable to them are securely held, while tidelands he artificially appropriated after those dates remained the property of the State.

Title 13 aforesaid provides:

13:1B-13.2 Title studies and surveys; certification of State-owned lands.

The council is hereby directed to undertake title studies and surveys of meadowlands throughout the State and to determine and certify those lands which it finds are State-owned lands.

In undertaking its studies and surveys the council shall divide its work into such a number of surveys as it shall determine is advisable and it shall establish the priority in which such surveys shall be undertaken. As its first survey, and within 6 months of the effective date of this act, the council shall undertake, and complete, a study of the Hackensack meadowlands. During the period of time between the initiation of a project and the publication of the map and study delineating the State-owned lands within the survey area, the council shall make no conveyances,

leases or transfers of any riparian land within the survey area. These studies and surveys shall be performed on behalf of the council by the Navigation Bureau of the Department of Conservation and Economic Development.

Despite appellants' contentions that *O'Neill* has been displaced by *Corvallis* (see the Court's conclusions as to Issue No. 1 *infra*) and despite appellants' comprehensive argument that *O'Neill* erroneously states a principle of riparian ownership in conflict with prior States and English decisional law, *O'Neill* does represent the latest pronouncement of New Jersey law on such ownership and will govern the court in making its proposed findings of fact and conclusions of law.[1]

Appellants urge that the test should be twofold:—a regular flowing of mean high tide and along or immediately adjacent to the banks of clearly defined navigable waterways. The difference in the result obtained from such tests is self-evident and dramatic.

The first response of the applicable State agencies to Title 13 was the publication of a map in two parts on January 14, 1970 entitled "Part I" and "Part II" of the "Block and Lot Subdivisions in the Hackensack Meadowlands." The map purported to carry out the suggestions of the Supreme Court in *O'Neill* and its progeny that the State catalog its far flung claims to tide-flowed lands. Additionally, it purported to comply with the criteria sug-

1. *O'Neill* and its progency, both subsequent common law decisions and statutory law, apply a unitary test to determine whether the sovereign or the owner of record holds title to lands in the meadows. That test is whether the land is or was regularly flowed by mean high tide, regardless of whether or not the lands are interior or immediately adjacent to rivers, streams, bays, etc.

gested by *N.J.S.A.* 13:1B-13.1. It was later determined by this Court, in an unpublished opinion, that there was noncompliance with the statutory directions. The map was accordingly suppressed on September 8, 1971.

The impact of the new maps, here under challenge, was immediate. Substantial tracts of lands in the meadowlands affected by the maps under challenge are involved in numerous condemnation proceedings commenced by the Commissioner of Transportation, New Jersey Turnpike Authority and the New Jersey Sports and Exposition Authority. These eminent domain proceedings are a mixed bag. Some are partial, while others are entire takings; some lands are improved; others unimproved; some have been filled or have other artificial changes wrought upon them with no records of original elevations or relevant tidal data preserved and available; some have been drained or cut through with ditches and canals with respect to partial takings or entire takings, there are instances where the State claims the entire tract was once or is now tide-flowed; in other instances the State's claim is fractionalized.

Moreover, substantial areas of the Hackensack and Newark/Elizabeth meadows, while not cast in the eminent domain proceeding mold, lie within the shadow of these claims maps which will inevitably spawn a myriad of quiet title suits. Additionally, the interests of the title insurance industry is a self-evident one, with substantial sums at stake involving extremely valuable acreage.

The Court also calls the attention of the Appellate Division to a fact that can easily becloud the issues in this case. The matter at hand essentially deals with competing methodologies devised to fix the line of mean high tide in watery meadowlands. To simply search out the best and

most accurate methodology is to mistake the question. The core issue is whether the maps, here questioned, were a reasonable response to the legislative mandate in Title 13 under all of the circumstances confronting the Council in this truly monumental undertaking. This is, thus, not a quiet title suit. It may well be that in existing and future quiet title suits, where ownership to meadowlands is at stake, a better methodology than that which the State followed in promulgating these claims maps will carry the day for the private owner of record. There would be nothing inconsistent with that result and the one here obtaining.

PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW

ISSUE I

WHAT PROPERTY OWNERSHIP DOES THE STATE OF NEW JERSEY POSSESS AS AN INCIDENT OF ITS SOVEREIGNTY UNDER FEDERAL COMMON LAW?

Appellants contend that by virtue of *Bonelli Cattle Co. v. Arizona,* 414 U.S. 313, 94 S. Ct. 517, 38 L.Ed.2d 526 (1973), the New Jersey law governing ownership of tidelands has been superseded by federal law. Without here detailing the difference between federal common law and New Jersey common law, suffice it to say that such difference is dramatic and far reaching in consequence. However, the United States Supreme Court in *Oregon Ex Rel State Land Board v. Corvallis Sand & Gravel Co.,* 429 U.S. 363, 97 S. Ct. 582, 50 L.Ed.2d 550 (1976), reversed its holding in *Bonelli* and restated the fundamental principle governing real property law in general and riparian lands in particular to the effect that title to real property

is to be determined by state law rather than by federal common law.

"Upon full reconsideration of our decision in *Bonelli*, we conclude that it was wrong in treating the equal footing doctrine as a source of federal common law after that doctrine had vested title to the river bed in the State of Arizona as of the time of its admission into the Union. We also think there was no other basis in that case, nor is there any in this case, to support the application of federal common law to override state real property law." *Oregon v. Corvallis Sand & Gravel Co., supra*, at 592.

ISSUE II

WERE THE MAPS PUBLISHED BY THE STATE OF NEW JERSEY PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF N.J.S.A. 13:1B-13.1 ET SEQ. AND THE PRINCIPLES OF O'NEILL?

More specifically: Did the State of New Jersey equally and uniformly take into account:

(a) *The mean high water line established by U.S. Coast & Geodetic Survey?*

(b) *The nature of the vegetation of the meadowlands?*

(c) *Artificial changes in land and water elevations?*

(d) *Historical and scientific data?*

The main thrust of appellants' attack, in sum, centers on what they conceive to be a fatal imbalance in the attention the State paid to the four basic guidelines projected by the Legislature in the statute here pertinent. (*N.J.S.A.* 13:1B-13.3).

PROPOSED FINDINGS OF FACT

1. The Legislature, heeding *O'Neill,* delegated authority to the Natural Resources Council ("Council") authority to catalog the State's tidelands holdings affording it broad administrative discretion in responding to the mandate to "make surveys and publish maps." *N.J.S.A.* 13:1B-13.1 *et seq.*

2. Then Commissioner Sullivan of the Department of Environmental Protection ("DEP"), having informally directed his staff to commence tidelands mapping in October 1971, formally dedicated the task of preparing official maps to the Office of Environmental Analysis ("OEA") pursuant to his administrative order No. 34 on July 26, 1973.

3. The Court finds that OEA was under the supervision of Roland Yunghans and Dr. Edward Feinberg, competent, scientifically trained personnel. Through their many days of testimony and cross-examination it was demonstrated that they possessed a high degree of professionalism and devotion to the difficult tasks assigned to them.

4. The staff of OEA had the benefit of experience acquired in the mapping of the State's coastal wetlands pursuant to *N.J.S.A.* 13:9A-1 *et seq.*, which statute imposes use regulations on lands upon which certain enumerated vegetative species are capable of growing, ". . . including those areas now or formerly connected to tidal waters whose surface is or at below an elevation of 1 foot above local extreme high water . . ." *N.J.S.A.* 13:9A-2.

5. With satisfactory results in vegetative species, delineation demonstrated by pilot studies (*see* Exhibit R-229) and a final report (*see* Exhibit R-127) prepared for OEA by Earth Satellite Corporation ("Earth Sat.") in 1971, DEP contracted with Earth Sat. on August 30, 1971 to

have the entire coastal wetlands delineation project conducted by Earth Sat.

6. While the wetlands project was pending, this Court suppressed the so-called "Gray and White Map" on September 8, 1971. This map was the State's initial response to the mapping mandate of *N.J.S.A.* 13:1B-13.1 *et seq.*, which map had been issued by the Department on January 14, 1970.

7. Thereafter, OEA was directed by Commissioner Sullivan to determine the feasibility of applying the existing wetlands technology to tidelands delineation.

8. In the late fall of 1971, Feinberg and Yunghans met with Assistant Attorney General Greenberg and then Deputy Attorney General Clayton, who regularly advised the State on tidelands matters and in this instance advised OEA as to:

(a) The significance of the "existing scene" in light of the *O'Neill* decision.

(b) The effect of the repeal of the Wharf Act in 1891.

(c) The necessity of considering all of the elements set forth in *N.J.S.A.* 13:B-13.3 (*i.e.*, the mean high water line where fixed by the U.S.C. & G.S.), the nature of existing vegetation, artificial changes in land and water elevations, and historical and scientific data.

9. In considering the steps to take in formulating the tidelands delineation project, OEA reviewed numerous existing sources of potentially relevant data and techniques including, but not limited to, records of the Bureau of Navigation of the Department; Vermuele's maps (Exhibits A-17, 18, 19) of the Hackensack area, photographic atlas sheets (Exhibits R-186, 187), existing panchromatic pho-

tography taken at 10-year intervals between 1940 and 1971 (*see* Exhibits R-192 to 196), a study on marsh resistivity furnished by Aero Service (Exhibit R-211), treatises on mapping tideland boundaries and datum planes by Shalowitz (Exhibits R-202, 203) and Marmer (Exhibit R-204), a treatise entitled "A Phygopedologic Study of the Hackensack Meadowlands" by Harmon and Tedrow (Exhibit R-241), existing U.S. Coast & Geodetic Survey Report (Exhibit R-200) and maps of the area (Exhibit R-181 to 185), which comprised a 1964 mean high water survey for part of the Hackensack meadows and a photogrammetrically-produced elevation survey made in 1963 by Fairchild Aerial Surveys for the U.S. Army Corps of Engineers (Exhibits R-178 and 179).

10. Consideration was given to the difficulties of applying the same techniques in the relative undeveloped Hackensack meadows and the overdeveloped, filled Newark/Elizabeth meadows, particularly in light of the data sources available for each. The differences in conditions were the subject of discussion in an internal memoranda dated December 30, 1971 (Exhibit R-132).

11. OEA researched and considered available historical information including old records, maps and photographs.

12. Also considered was the extent of artificial changes which had occurred and influenced land and water elevations in the meadowlands.

13. The utility of reproducing old map sources (for example, the Vermuele 1890 maps and 1930 aerial photography) at the same scale being used on the base maps was evaluated.

14. On May 9, 1972, OEA staff and other interested persons, including the Court, attended a briefing on map-

ping techniques at the headquarters of the National Ocean Survey (NOS), Rockville, Maryland, the acknowledged authority on determining measurements of mean high tide (*see* Paragraph 2B—Stipulations—Pretrial Order—12/19/75).

(a) A memorandum of that meeting (Exhibit R-155) confirmed that NOS was reluctant to ascribe cost or time estimates to the New Jersey project and demonstrated inexperience in marshland boundary delineation.

(b) The leading NOS published treatise, "Shore & Sea Boundaries" by Aaron L. Shalowitz (Exhibit R-202, 203) was consulted and confirmed the difficulty in attempting to identify high water lines in marsh areas through conventional surveying or tide gauging techniques.

15. OEA concluded that conventional techniques, including those employed by NOS, could not produce the maps required by *N.J.S.A.* 13:1B-13.1 *et seq.* within practical time and cost limits because:

(a) Gauging and surveying would be too expensive and time-consuming, given the number of gauges and length of time which would be required to acquire sufficiently accurate datums and the character of tide marshes. The old surveys lacked sufficient data bases and precision.

(b) Existing Bureau of Navigation records were incomplete and lacking in precision.

(c) NOS and other authorities agreed that traditional techniques were insufficient to meet the task at hand.

16. In October 1972, OEA contracted with Earth Sat. for a pilot study of biological delineation in the Hackensack meadows of portions of an area known as "Walden Swamp", which had been the subject of aerial photography

by Mark Hurd Aerial Surveys taken on August 20, 1972. These photographs have been stipulated as accurately representing the physical condition of the photographed terrain on or about August 20, 1972. (*See Pretrial Order*—12/19/75—Para. 2A).

(a) Mark Hurd prepared maps (Exhibit R-216) for use in the pilot study and Earth Sat. prepared a report which was received by OEA.

(b) Dr. Richard Anderson, Professor of Biology at American University and a consultant to Earth Sat. on species identification and other projects, was the principal analyst in the pilot project.

(c) Earth Sat.'s report of the pilot study (Exhibit R-140) concluded that *Phragmites communis* (the principal form of plant life in the Hackensack meadow area) responds to differences in water supply (*see* Exhibit R-140 at p. 10) at the plant growing sites and that major tone "signature" differences could be observed in analysis of color infrared photography which demonstrates the relative water supply of the plant study.

(d) Mark Hurd is acknowledged as a leading authority in the country in aerial photography, photogrammetry and the preparation of maps.

17. On the basis of the analysis of the pilot study project, discussions with Earth Sat. personnel, independent analysis of other examples of photo-interpretive techniques and the difficulties in employing other techniques, OEA in November 1972 concluded that:

(a) The Hackensack meadows area was not suitable for mapping by conventional techniques of gauging and/or surveying.

(b) Appropriate biological delineation had potential for useful adaptation.

(c) Time and accuracy requirements would not permit acquisition of sufficient NOS-determined tidal datums.

18. OEA negotiated with Earth Sat. for further biological delineations in the Hackensack meadows (Exhibit R-141) and subsequently entered into an agreement (Exhibit R-143) for the same.

19. In order to be certain that any area to be claimed as lying below mean high water was in fact connected to a tidal water course, OEA arranged to have the staff of the Hackensack Meadowland Development Commission (HMDC) depict on each of the 36 base maps requisite data indicating the location of tidal streams, sluice gates, culverts, etc. (*see* Exhibit R-158).

20. On January 28, 1973, Commissioner Sullivan, having been apprised of the steps to be taken in effecting the mapping program (Exhibit R-144), instructed DEP to support and assist the program.

21. Specifically excluded from materials furnished to Earth Sat. for its work in making botanical delineations were available U.S. Coast & Geodetic (U.S.C. & G.) surveys, including NOS drawn mean high water lines for 1962 and 1963, which were retained to provide the State a means of conducting an independent check on the anticipated work of Earth Sat. (Exhibits R-181 to 185).

22. As a further check of the Earth Sat. work, OEA in January 1973 contracted with Storch Engineers (Storch), New Jersey licensed surveyors, to obtain 40 point elevations in the Walden Swamp area. The specific points to be surveyed were not preselected by OEA in order to insure a random check.

(a) The number of points was constrained by the limit of funds available for the job but determined by Storch to be an adequate sample.

(b) OEA was also interested in learning Storch's views on the difficulty of marshland surveying.

(c) Storch furnished a report (Exhibit R-142) on March 9, 1973 providing a map overlay and coordinates for the 40 points surveyed, field observations of conditions observed, including weather, and the difficulties encountered in working in marshland areas.

23. In early 1973 OEA received a comprehensive draft historical report (Exhibit R-240) on the Hackensack meadows which had been prepared by research assistants for HMDC. The same was considered by OEA in analyzing source materials and delineating areas for inclusion in the ultimate claims overlays. Like other historical sources considered, the report proved to be of limited value in locating actual former lines of mean high water.

24. In preparing to make the ultimate claims delineation decisions, OEA developed, in early 1973, rules for use by staff analysts as follows:

(a) Control sheets (Exhibit R-165) for positioning and rectifying base maps were prepared by Mark Hurd and adopted.

(b) A document entitled "Rules for Analysts" (Exhibit R-160) was circulated among OEA staff and strict adherence to the procedures set forth therein was made a prerequisite of all delineation decisions.

(c) Feinberg demonstrated to the Court the application of the prescribed analytical rules by reference to a typical base map (Cromakill Creek). See Exhibits R-23, R-59 and

Map Summary Report, Exhibit R-95. The Court observed that the report lists the sources considered in preparation of the individual claims overlay including, for example, Bureau of Navigation Atlas Sheet No. 7 (Exhibit R-191), the Vermuele overlay (Exhibit R-18) prepared from Vermuele manuscripts in the files of the State geologist by Mark Hurd (Exhibit R-190), the 1930-32 aerial photography (Exhibit R-187, 188) and 1940 aerial photography (Exhibits R-192 to 194). Appellants stipulated that the source materials listed in the individual map summary reports were in fact considered in preparation of the claims overlays described therein.

(d) Each base map is divided into a grid of 42 squares (each 1,000′ x 1,000′), each map measuring 6,000′ east/west, 7,000′ north/south.

(e) Pursuant to "Rules for Analysts" (Exhibit R-160), each of the 42 blocks in every map was analyzed beginning with the "existing scene" and working backward in time by reference to available sources.

(f) All observations were noted in individual map log books (Exhibits R-109 to 120) by the analysts who dated and initialed every entry. As an example, the Court examined the log book (Exhibit R-118) for the Cromakill Creek Map (Exhibit R-23), claim overlay (Exhibit R-59) and summary report (Exhibit R-95) and noted the recording of sources analyzed by the staff of OEA and after review by OEA supervisory personnel, the determination of claims decisions for the particular map block under study.

(g) Claims decision information, sketches and instructions were then forwarded by OEA to Mark Hurd for preparation of final claims overlays. The final Mark Hurd products were checked upon receipt by OEA staff against source materials and instructions. The Hurd products are

clearly of the highest quality and stipulated by appellants to be excellent maps. The Court also finds that the maps meet national map accuracy standards.

25. Different techniques were necessary for preparation of the single map and claims overlay of the Newark/Elizabeth meadows areas which were formerly a salt marsh.

(a) The Newark/Elizabeth area was highly developed. The Court takes judicial notice of the existence in 1971-1973 of the Newark International Airport, Port Newark-Port Elizabeth Complex, the New Jersey Turnpike and the heavily interwoven network of roads, including State Highways 1, 9, 21 and 22.

(b) OEA determined to draw a single Newark/Elizabeth map at a smaller scale than that employed in the 36 Hackensack area maps and to draw heavily on historical sources in preparation of the same in order to reconstruct conditions before the extensive development of this area.

(c) In consultation with Mark Hurd personnel, instructions for preparation of a 1:9600 scale base map and overlays based on historical sources were developed (Exhibit R-166 to 173) during the late part of 1972. Care was taken to assure production of a map which complied with national map accuracy standards.

(d) Historical sources, including Vermuele's maps and the 1930-32 aerial photography which showed the scene before most of the filling and construction discussed aforesaid took place, and the 1917 City of Newark Tax Maps were also considered (Exhibit R-170).

(e) OEA further determined to incorporate its statistical overflow of 10 feet beyond the banks of depicted water courses because of analogous conditions observed in the existing undisturbed areas of the Little Egg Harbor mea-

dows located north of Tuckerton, Atlantic County. The former Newark/Elizabeth meadows were compared with the present Little Egg Harbor meadows on the basis of vegetation, general morphology, tidal access and proximity to major fresh water streams. Statements about predevelopment conditions in the Newark/Elizabeth area contained in deposition testimony of a surveyor in the area, Edward J. Grassman (Exhibit R-217) and the 1904 report (Exhibit R-271) of the State Entymologist, Dr. Smith, which described regular salt marsh flooding in the area, were also considered.

(f) The Court had occasion to view the Tuckerton conditions on April 6, 1976 during a field visit and observe stakes implanted in April 1973 by a joint research team of NOS and OEA personnel at points of local mean high water. The observed location of these stakes confirms that high vigor *Spartina Alterniflora* grows in areas below mean high water.

PROPOSED CONCLUSIONS OF LAW

In many instances the basic legal propositions here supportive of the conclusions of law referable to the issue at hand are prefatory to other issues dealt with within this opinion and shall not be hereinafter repeated.

As a matter of law, the action of an administrative agency must be accorded a strong presumption of reasonableness. *City of Elizabeth v. Sullivan*, 125 *N.J. Super.* 569, 574 (App. Div. 1973); *Mun. San. Landfill Auth. v. Hackensack, etc. Comm.*, 120 *N.J. Super.* 118, 128 (App. Div. 1972); *Consolidation Coal Co. v. Kandle*, 105 *N.J. Super.* 104, 118 (App. Div. 1969), aff'd. 54 *N.J.* 11 (1969).

A challenging litigant bears a heavy burden of demonstrating that the action taken is arbitrary or capricious or in contravention of legislative direction. *Campbell v. Dept.*

of Civil Service, 39 *N.J.* 556, 562 (1963); *United Hunters Assn. of N.J. Inc. v. Adams*, 36 *N.J.* 288, 292 (1962); *Morgan v. Saslaff*, 123 *N.J. Super.* 35, 38 (App. Div. 1973).

The presumption of reasonableness is all the more strong when, as here, the agency has been delegated discretion to determine the procedures by which a task involving specialized and technical matters is to be carried out. Because the Legislature has accorded the Council discretion in selecting the mapping procedures, see *N.J.S.A.* 13:1B-13.3, and because the agency and the staff is presumptively better equipped and informed by training and experience to deal with the specialized fields of knowledge involved than is the Court, the action of the agency should be accorded the greatest deference. *Consolidation Coal Co. v. Kandle, supra; Shahmoon Indus., Inc. v. Dept. of Health, N.J.*, 93 *N.J. Super.* 272, 282 (App. Div. 1966), cert. den. 49 *N.J.* 358 (1967); *Cooley's etc. Foundation v. Legalized Games, etc. Comm.*, 78 *N.J. Super.* 128, 140 (App. Div. 1963) cert. den. 40 *N.J.* 212 (1963); 4 *Davis, Administrative Law Treatise*, §30.10, p. 247-252 (1958).

Where there is any fair argument in support of the course taken or any reasonable ground for difference of opinion among intelligent and conscientious men, the agency action must not be disturbed unless patently corrupt, arbitrary or unreasonable, or contrary to law and doubts held by a court as to the wisdom of the action do not authorize it to substitute its judgment for that of the agency. *Jackson v. Concord Co.*, 54 *N.J.* 113, 117 (1969); *Close v. Kordulak Bros.*, 44 *N.J.* 589, 599 (1965); *In re Public Service Elec. & Gas Co.*, 35 *N.J.* 358 (1961).

That better methods may exist than those chosen by the agency is not equivalent to the abuse that must be found to authorize a court to substitute its judgment for that of the agency. Rather, one who challenges the administrative

action must show clearly that it is an expression of unreasoned whim instead of the presumed exercise of expert judgment. *A.T. & T. v. United States,* 299 *U.S.* 232, 57 *S. Ct.* 170, 81 L.Ed. 142 (1936).

Within this setting the Court concludes there is sufficient credible evidence in the record demonstrating that the State, in publishing the maps under attack, reasonably complied with the requirements of *N.J.S.A.* 13:1B-13.3.

The pertinent issue set forth in the pretrial order—did the State of New Jersey *equally* and *uniformly* take into account the mean high water line established by U.S.C. & G.S., the nature of vegetation, artificial changes and historical scientific data is misstated if it purports to mandate arithmetic or quantitative equality and uniformity in its consideration of the four categories there stated. Moreover, a mean high water line has not been established throughout the Hackensack Meadowlands by the U.S.C. & G.S. If it had been, the task of preparing claims maps would have been a simple one and this controversy would never have been spawned. OEA took U.S.C. & G.S. survey mean high water lines as and where they had been established. However, where this line had been established was minimal when contrasted with the area to be mapped.

ISSUE—III.

ARE THE BASE PHOTOMAPS WITH CLAIMS OVERLAYS "MAPS" WITHIN THE MEANING OF *N.J.S.A.* 13:1B-13.4 AND O'NEILL, *SUPRA*?

PROPOSED FINDINGS OF FACTS

As will be developed hereinafter under Issue VI, *claims overlays were developed in large part by a botanical delineation program;* a program, while paying due heed,

whenever possible, to a mean high water line established by the U.S.C. & G.S., artificial changes in land and water elevations, the nature of vegetation in the meadowlands and historical and scientific data, predicates a claim line on the vigor of certain plant life derived from infra-red aerial photography; *a program that espouses a theory that regular tidal inundation specifically and reliably affects the vigor of such plants.*

Appellants decry this method as most unreliable when compared with classic land surveying techniques employing tidal datums, such as those developed by NOS, and land elevations. In a sentence, appellants say—"Get out in the field with your rods and survey instruments and stake out the line of mean high water—anything else is not good enough". Again, appellants argument is misplaced and demonstrates a misunderstanding of the State's obligations under *N.J.S.A.* 13:1B-13.1 *et seq.*

O'Neill, supra, at p. 320, said: "As a matter of good housekeeping, the appropriate officers of the State should do what is *feasible* to *catalogue* the State's far-flung holdings . . ." [Emphasis added.]

N.J.S.A. 13:1B-13.2 directs the Council to undertake tidal studies and surveys of meadowlands throughout the State and to determine and certify those lands which it finds are State-owned lands. *N.J.S.A.* 13:1B-13.4 directs the State upon the completion of each separate study and survey to publish a map portraying the results of its study and clearly indicating those lands designated by the Council as State-owned lands.

The published maps are "Claims Maps" and not surveys as generally understood within the context of title surveys employed in land conveyancing. *The botanical line fixing the outer boundaries of State-claimed lands purports to*

fall within the boundary of mean high water. It is a conservative claim when one considers that mean high water is a mathematical abstraction and does not actually occur.

The testimony supports a finding that the photobased maps underlying the claims overlays satisfy national map accuracy standards as published by the federal government and are precisely located within the New Jersey Plane Coordinate System, an officially recognized system which permits surveyors to locate specified points on the ground.

PROPOSED CONCLUSIONS OF LAW

The Court concludes that the base photomaps with claims overlays are maps within the meaning of *N.J.S.A.* 13:1B-13.4 and *O'Neill.*

ISSUE—IV.

HAS THE STATE COMPLETED THE TIDAL STUDIES AND SURVEYS REQUIRED BY *N.J.S.A.* 13:1B-13.1 *ET SEQ.* WITH REGARD TO THE BOTANICAL DELINEATION PROGRAM IN THE SO-CALLED "HATCHED AREAS"?

When the State published its claims maps, certain areas depicted thereon were "hatched". "Hatching", according to the legend, denoted more than a disclaimer of ownership, but less than an outright claim. Ownership was characterized as "possible" as to a part or the whole of the hatched area. In *Newark v. Nat. Res. Coun., Dept. Environ. Protec.*, 133 N.J. Super. 245 (Law 1974), aff'd. 148 N.J. Super. 297 (1977), this type of delineation was held to be incompatible with the legislative direction in *N.J.S.A.* 13:1B-13.4. The Council was directed by the Court to prepare new overlays clearly indicating a claim of ownership or no claim. Subsequently and prior to this opinion, the State completed new tidal studies referable to the

"hatched" areas and prepared new claims. *The State restricted its claims in the former hatched areas to the beds of clearly defined tidal creeks and streams.* Thus, the State has complied with the mandate of the Court. Hence, this issue is moot.

ISSUE—V.

HAS THE NATURAL RESOURCES COUNCIL "CLEARLY" INDICATED THOSE LANDS DESIGNATED AS STATE-OWNED PURSUANT TO *N.J.S.A.* 13:1B-13.4?

The Court in *Newark v. Nat. Res. Coun., supra,* when construing *N.J.S.A.* 13:1B-13.4, stated:

1. As used in the statute which directed the *Natural Resource Council* to publish a map portraying results of its study of ownership of riparian land and "clearly indicating" those lands designated by the Council as State-owned lands, the term "clearly" means visibly, unmistakably and in words of no uncertain meaning.

2. As used in the aforesaid statute, the word "indicating" as modified by the word clearly, means an unambiguous delineation.

In light of the foregoing, the answer to the issue herein posed is in the affirmative.

ISSUE—VI.

MEASURED BY A PREPONDERANCE OF THE EVIDENCE, WAS THE ACTION OF THE STATE IN THE PREPARATION, APPROVAL, ACCEPTANCE AND PROMULGATION OF THE MAPS ARBITRARY, CAPRICIOUS AND UNREASONABLE?

As has been demonstrated, *supra,* under II, the State has satisfied the Court *by a preponderance of the evidence*

that due heed was paid to the four factors set forth in N.J.S.A. 13:1B-13.3. To that extent, the appellants have not met their burden of proving an arbitrary, capricious or unreasonable act on the part of the State in publishing the maps here under attack.

PROPOSED FINDINGS OF FACT

1. In developing its tidelands delineation techniques, the State consulted and contracted with leading authorities including:

(a) Earth Satellite Corporation, Washington, D.C., which assembled a team of capable professionals. (See Exhibit R-149 at pp. 279 through 384).

(b) Dr. Richard Anderson, Biology Department Chairman, American University and a leading national authority on the techniques of species identification in coastal marshes. *See* Mark Hurd Aerial Surveys, Minneapolis, Minnesota, stipulated by appellants to be a leading national authority on aerial photography and cartography.

2. In conducting its delineation analysis, the State gave consideration to the elements specified by the Legislature as set forth in *N.J.S.A.* 13:1B-13.3. (*See* discussion under Issue II, *supra.*)

3. Where and as employed, the "biological technique" has an adequate scientific basis and is a reasonable method of delineating existing areas subject to tidal inundation.

(a) Most (85%) of the Hackensack Meadowlands are covered by *Phragmites communis* (*see* Exhibit R-149 at p. 2), a plant which grows below as well as above mean high water (*see* Exhibit R-282, 283 and 286) and which does grow intermixed with *Spartina alterniflora* (a true tidelands grass) in tidal areas. (*See* Exhibit R-149 at p. 5).

(b) Analysis by qualified Earth Sat. experts of aerial infra-red photographs of 6,800 acres of Hackensack Meadowlands and the *Phragmites* growing thereon revealed definable botanical indications ("signatures") corresponding to relative tidal inundation (*see* Exhibit R-149 at p. 1).

(c) The "signatures" appearing on the infra-red photographs are regularly recurring phenomena which demonstrate the physical differences in the plans studies. (*See* Exhibit R-149 at p. 9).

4. OEA visually compared the Earth Sat. botanical lines with available U.S.C. & G.S. mean high water lines (these were the 1962 and 1963 U.S.C. & G.S. maps withheld from Earth Sat. by OEA in order to provide an independent check. *See* discussion under Issue II, *supra*) in order to identify which vegetative signature keys fall either at or below the U.S.C. & G. survey determined mean high water line.

(a) In determining ("Existing Scene") areas to be claimed, OEA delineated only those areas for which a definite tidal access was discernible.

(b) These procedures were set forth in "Rules for Analysts", the internal document which guided the OEA staff in its delineation decisions. (*See* Exhibit R-160).

(c) This procedure is consistent with the research of Dr. Sylvia Haslan, an acknowledged authority on *Phragmites communis,* who supported the analysis of isolated clones (plant groups) of the plant to indicate relative tidal inundation *where tidal access is established.* (*See* Exhibit A-263).

5. The State had the benefit of prior experience in species identification in the Wetlands Protection Program,

mandated by the Legislature of 1970. *N.J.S.A.* 13:9A-1 *et seq.* (*See* Exhibit R-126).

(a) Essentially the same State personnel were involved in the Wetlands Delineation Project.

(b) Essentially the same independent contractors were involved in the Wetlands Delineation Project. (*See* Exhibit R-126, 127).

6. The Earth Sat. personnel and consultants had experience in observing total differences in similar species in other states. (*See* Exhibit A-261).

7. The technique of delineating areas of relative tidal inundation is confirmed in biological literature. (*See* Exhibit R-149 at pp. 37, 38, 71, 72, 83, 87, 93 and 94).

8. The published work of appellants' expert (Dr. Reimold) recognizes the validity of the techniques of species delineation employed by the State's consultants. (*See* Exhibit A-226, 227, 228 and A-238).

9. The biological photo-interpretation technique was confirmed by extensive field analysis conducted throughout the Hackensack Meadowlands by Earth Sat. personnel employing scientific and statistical analysis.

(a) The Earth Sat. final report (Exhibit R-149) is based on evidence of the extensive field investigation conducted to evaluate the conclusion that color infra-red *Phragmites* signature *Phenotypes* are valid indicators of relevant tidal inundation within tidal *Phragmites* marshes of Hackensack meadow areas.

(b) Field investigation revealed that real differences among the *Phenotype* signatures observed in the photographic analysis could be verified on the ground from area to area. (*See* Exhibit R-149 at p. 131).

(c) As set forth in Exhibit R-149, there is ample evidence that *Phenotype* signature differences are attributable to relative tidal inundation. (*See* Exhibit R-149 at pp. 127 to 130).

(d) As confirmed by the data set forth in Exhibit R-149, many independent measurements support the relative tidal inundation concept including over-wintered culms, surface organic litter, rhizome depth and shape and soil consistency. (*See* Exhibit R-149 at p. 61 *et seq.*).

10. In order to assure consistency with the relative water supply conclusion, every area claimed by the State based on the biological technique, discussed *supra*, was determined by field checks to be connected to an existing local tidal source. (*See* Exhibit R-149 at p. 148).

11. The State conducted another study to compare the biological lines with the mean high water line drawn for portions of the Hackensack Meadowlands by the U.S.C. & G.S. and the comparison showed good agreement between the two lines.

(a) This study (Exhibit R-281) performed by Dr. William Maddox, a State biologist with training in measurement sciences, compared 699 individual points along 26.4 miles of shore line and found most points to be within tolerances for accuracy of the mean high water line as specified in the U.S.C. & G.S. report consistent with federally-promulgated National Map Accuracy standards. (*See* Exhibit R-287).

(b) This comparison of independently drawn measurements is termed "closure" and the resulting uniformity of the NOS and biological lines inspires confidence in both techniques. (*See* Exhibit R-281).

12. A joint State-NOS study of the efficacy of using biological lines conducted at Tuckerton demonstrated the

essential agreement with NOS-drawn mean high water lines and the reasonableness of applying a 10-foot overflow statistic in the Newark/Elizabeth mapping because of the similarities between the Tuckerton meadows and the Newark/Elizabeth meadows prior to extensive changes (*See* Exhibit R-291, R-292).

PROPOSED CONCLUSIONS OF LAW

1. *While the appellants produced considerable testimony by qualified scientists and engineers challenging the reliability of the botanical line methodology in fixing State claims, testimony which in another setting (a specific quiet title suit for example) might carry the day, that testimony within this specific case setting—compliance with a statute granting considerable discretion to a State agency—is insufficient to rebut the presumption of validity afforded such an agency.*

2. The Court concludes there is sufficient credible evidence in the record of the administrative agency to support the selection and application of the particular methodology here employed in stating claims to meadowlands and in the claims themselves as evidenced by the maps here questioned.

ISSUE—VII.

IS THE STATE OF NEW JERSEY ESTOPPED FROM ASSERTING THAT THE PROPERTIES IN QUESTION ARE TIDAL-INFLUENCED AND THEREFORE SUBJECT TO A CLAIM OF STATE OWNERSHIP WHERE THE STATE HAS ALLEGEDLY ACKNOWLEDGED BY VARIOUS TYPES OF DOCUMENTS OVER THE YEARS THAT THE SAME IS UPLAND?

PROPOSED FINDINGS OF FACT

1. Preparation of riparian atlas sheets by the Riparian Section of the Division of Marine Services (*see* Exhibit A-33 and A-53) was initiated early in this century for the purpose of depicting and cataloging the location of lands which were the subject of riparian grants by the State and not as a statement or claim of the State's tideland holdings.

2. The data shown on each such atlas sheet pertained solely to those parcels which were the subject of grant applications and, ultimately, the grants that actually evolved.

3. Any mean high water line or lines indicated on said atlas sheets were intended by the State to reflect the mean high water line as set forth in the grant shown on said atlas sheets and not as a statement binding the State as to the precise or claimed location of the mean high water line.

4. The mean high water line or lines shown on the grants and cataloged on the atlas sheets were intended by the State as grantor and by the respective grantees to reflect a representation by the grantee of its determination as to location of the mean high water line and the landward limit of the specific parcel for which the grantee was requesting a conveyance from the State.

5. The "solid line" on Exhibit A-33, for example, and similar lines on Exhibit A-24 to Exhibit A-53, were placed on the atlas sheets at unknown points in time by unknown persons using unknown source materials, presumably for grant information only.

6. The solid line on Exhibit A-33 was not intended by the State to represent the actually claimed high water line of the Hackensack River.

7. The respective mean high water lines shown on the atlas sheets (*see* Exhibits A-33 to A-53) with respect to the grants depicted thereon follow a path which is divergent from the path of the solid lines on Exhibits A-33 to A-53.

8. Appellants have not demonstrated any justifiable reliance by appellants upon any representation by the State limiting its tidelands claims.

9. Appellants have made no showing that any application for a grant of interior meadowlands was made to the State at any time, or that any grant of interior meadowlands was made pursuant to or in reliance upon the mean high water lines indicated on the atlas sheets marked Exhibits A-33 to A-53.

10. Although most were on a front foot basis, the consideration for some of the grants of riparian lands by the State was calculated on the basis of a charge per acre.

11. Among the grants with respect to which the mean high water line shown on the atlas sheets is discrepant from the solid line (indicating extent of the area to be conveyed) on the respective atlas sheets are grants made in the years 1877, 1900 and 1901.

12. Appellants have made no showing that the State knowingly and effectively disclaimed title to the interior meadowlands or to any specific meadowlands parcel.

13. Appellants have made no showing that the State made any representation or concealment of material facts relating to whether or not the lands which are the subject of this section were formerly flowed by the mean high tide at a time when the State possessed knowledge to the contrary.

14. There has been no showing that the State had any intention, expectation or reason to expect that any appellant in this action would act upon any such representation.

PROPOSED CONCLUSIONS OF LAW

1. The State is not subject to the doctrine of estoppel as that doctrine is applied against private parties. *Schultz v. Wilson,* 44 N.J. Super. 591, 605 (App. Div. 1957), cert. den. 24 N.J. 546 (1957); *Feldman v. Urban Commercial, Inc.,* 70 N.J. Super. 463, 477-479 (Ch. Div. 1961).

2. The burden of proof with respect to estoppel is on the party seeking the benefit of the estoppel. *Virginia Construction Corp. v. Fairman,* 39 N.J. 61, 72 (1962); *Lawes v. Lynch,* 7 *N.J. Super.* 584, 593 (Ch. Div. 1960), aff'd. 6 *N.J.* 1 (1950).

3. Our appellate courts have sustained the proposition that the State owns all lands now or formerly flowed by mean high tide. Further, as a matter of constitutional imperative, some lands have been deemed trust assets. *O'Neill v. State Hwy. Dept.,* 50 *N.J.* 307 (1967); *LeCompte v. State,* 128 *N.J. Super.* 552, 558-559 (App. Div. 1974),cert. den. 66 *N.J.* 321 (1974); *cf. Taylor v. Sullivan,* 119 *N.J. Super.* 426, 431 (App. Div. 1972), cert. den. 62 *N.J.* 70 (1972).

4. In light of the constitutional dedication of tidelands for the support of free public schools, the vast extent of the lands now or formerly flowed by mean high tide in the State and the absence of legislative action until 1968, mere inaction to map or otherwise delineate said lands is not a sufficient basis to constitute an estoppel against the State's claims of such tidelands. *O'Neill v. State Hwy. Dept., supra,* 320-322.

5. Prior to enactment of *N.J.S.A.* 13:1B-13.1 *et seq.*, no direction was ever made by the judiciary or Legislature to the Council or any other State agency to effect a definitive, comprehensive mapping of tidelands holdings—nor were resources ever made available for the purpose.

6. The doctrine of estoppel will be applied against the party who (1) engages in conduct amounting to a concealment of material facts and (2) has knowledge of these facts at the time of said conduct or may validly be imputed to have had such knowledge at that time and (3) has an intention, expectation or reason to expect that the party claiming the benefit of the estoppel will act upon the conduct, who (4) actually relies and acts upon the conduct of the party to be estopped and thereby changes its position for the worse while (5) lacking knowledge of the significant facts at the time it relies and acts upon them. *Feldman v. Urban Commercial Inc.*, 70 N.J. at 474-475.

7. The Court concludes that the State is not estopped from asserting that the property here in question is not tidally influenced and therefore subject to a claim of State ownership. The appellants have not met their burden of proving the five essential elements above set forth.

ISSUE—VIII.

WERE THE MAPS, HERE CHALLENGED, PROMULGATED OR ADOPTED IN ACCORDANCE WITH THE PROCEDURAL PROVISIONS OF *N.J.S.A.* 13:1B-13.1 *ET SEQ*?

N.J.S.A. 13:1B-13.4 requires that copies of the maps shall be filed with the Secretary of State and sent to the clerk of each county and to the governing body of each municipality whose political boundaries include land shown on

the map. It further provides that maps and studies shall be available for the public inspection. There is a further provision that the Council shall also cause to be published at least once in a newspaper, circulating in each county whose political boundaries include lands designated as State-owned lands, a list of those parcels designated in whole or in part as State-owned lands.

PROPOSED FINDINGS OF FACT

1. The base maps and claims overlays were the subject of public hearings held by the Natural Resource Council prior to the adoption of the same. The hearings were held on April 30, 1973, November 8, 1973 and May 9, 1974. Appellants appeared by counsel and through witnesses.

2. OEA reviewed the hearing transcripts prior to recommending adoption of the maps. The Natural Resource Council approved the maps on June 13, 1973 (*see* Exhibit R-236), October 10, 1973 (*see* Exhibit R-235), December 12, 1973 (*see* Exhibit R-234), February 20, 1974 (*see* Exhibit R-233) and June 12, 1974 (*see* Exhibit R-232).

CONCLUSION

There being nothing in the record to demonstrate noncompliance by the State with the requirements of 13:1B-13.4 referable to map publications, the Court concludes that the requirements of said statute were met.

ISSUE—IX.

IS THE SO-CALLED "PUBLIC TRUST DOCTRINE" APPLICABLE TO THE INSTANT APPEAL?

The instant appeal is one challenging the validity of claims maps promulgated by the State setting forth the State's ownership of lands now or formerly flowed by mean

high water and not heretofore quit-claimed or granted to prior owners.

Justice Hall in speaking for the New Jersey Supreme Court in the *Bor. of Neptune City v. Bor. of Avon-by-the-Sea,* 61 N.J. 296 (1972) carefully reviewed what he conceives to be the modern meaning and application of the public trust doctrine. The principle of the public trust doctrine as enunciated in the case of *Ill. Central R.R. Co. v. People of the State of Illinois,* 146 U.S. 387, 435, 13 S. Ct. 110, 111, 36 L.Ed. 1018, 1037 (1892) is quoted with approval therein:

> It is the settled law of this country that the ownership of and dominion and sovereignty over lands covered by tide waters, within the limits of the several states, belong to the respective states within which they are found, with a consequent right to use or dispose of any portion thereof, when that can be done without substantial impairment of the interest of the public in the waters, and subject always to the paramount right of Congress to control the navigation so far as may be necessary for the regulation of commerce with foreign nations and among the states. This doctrine has been often announced by this Court . . .

Justice Hall also goes on to point out that the doctrine owed its existence to a recognized need to preserve for the use of all, the public natural water resources for navigation and commerce, recognizing that waterways were the principal transportation arteries of early days, and also for fishing, which was an important source of food. To this end, *Illinois Central* was again cited with approval for the proposition that:

> It is a title held in trust for the people of the State, that they may enjoy the navigation of the waters,

> carry on commerce over them, and have liberty of fishing therein, freed from the obstruction or interference of private parties. The interest of the people in the navigation of the waters and in commerce over them may be improved in many instances by the erection of wharves, docks, and piers therein, for which purpose the State may grant parcels of the submerged lands; and, so long as their disposition is made for such purpose, no valid objections can be made to the grants. It is grants of parcels of land under navigable waters that may afford foundation for wharves, piers, docks, and other structures in aid of commerce, and grants of parcels which, being occupied, do not substantially impair the public interest in the lands and water remaining, that are chiefly considered and sustained in the adjudged cases as a valid exercise of legislative power consistently with the trust to the public upon which such lands are held by the State.

Thus, one must perceive that the doctrine focuses on whether or not public trust lands—here riparian lands—can be conveyed by the State without violating the very doctrine itself. Such a question is totally irrelevant in the context of the case at hand.

The Court would be derelict in duty if it did not say a word about Roland Yunghans and Dr. Edward Feinberg.

The State has been fortunate, indeed, to have in its employ these dedicated public servants who demonstrated throughout this trial a high degree of conscientiousness, ability and integrity in a most challenging enterprise. The people of the State have been well-served.

DATED: 8/23/78

/s/ Theodore W. Trautwein
THEODORE W. TRAUTWEIN
A.J.S.C.

ADDENDUM "E"

SUPERIOR COURT OF NEW JERSEY

LAW DIVISION (BERGEN COUNTY)

CALENDAR NO. 98-0067

APPELLATE DOCKET NO. A-3311-73

CIVIL ACTION

CITY OF NEWARK, et al.,

Appellants,

vs.

NATURAL RESOURCE COUNCIL IN THE DEPARTMENT OF ENVIRONMENTAL PROTECTION, et al.,

Respondents.

PRETRIAL ORDER DATED DECEMBER 18, 1975

PRETRIAL ORDER

The parties to this action, by their attorneys, having appeared before the Court at a pretrial conference on October 30, 1974, the following action was taken:

1. NATURE OF ACTION:

Challenge to and review of action of the Natural Resource Council acting as tideland agent for the State of

New Jersey under *N.J.S.A.* 13:1B-13 *et. seq.* More specifically, this consolidated appeal is in the nature of a supplementation of the administrative record created by respondent's action in acceptance and approval of certain maps or base photomaps with claims overlays which purport to establish the State's ownership of meadowland property pursuant to *N.J.S.A.* 13:1B-13.1 *et seq.* and *O'Neill v. State Highway Department,* 50 N.J. 307 (1967). The action was commenced in the Appellate Division of Superior Court and was remanded to the Law Division (specifically to the Assignment Judge of Bergen County or such judge as he may designate) for a determination of whether the maps published by respondent were prepared in accordance with the requirements of *N.J.S.A.* 13:1B-13.1 *et seq.* and specifically *N.J.S.A.* 13:1B-13.3, and were promulgated and adopted in accordance with the provisions of *N.J.S.A.* 13:1B-13.4. The Law Division judge has been directed by the remand Order to conduct proceedings and make appropriate findings of fact and conclusions of law.

2. ADMISSIONS AND STIPULATIONS:

A. Aerial photographs taken by Mark Hurd Aerial Surveys, Inc.—the respondent's contractor—accurately represent the physical conditions of the terrain so photographed on or about August 20, 1972.

B. The National Ocean Survey (Coast and Geodetic Survey of the United States Department of Commerce) is the acknowledged authority with respect to mean high tide measurement.

C. The Project Report Hackensack River, January, 1964, United States Department of Commerce, Coast and Geodetic Survey and the accompanying "Project Report" accurately depict the mean high tide of the Hackensack

River and its tributaries of those areas that were mapped as of that date.

D. Geological Survey of New Jersey, Atlas Sheets Numbers 1-20, George H. Cook, State Geologist are authentic and an official record of the State of New Jersey.

E. Artificial changes within the Hackensack Meadowlands Watershed including, but not limited to, filling in, diverting, diking, or dredging have had an impact on the tidal flow of the Hackensack River.

F. The Natural Resource Council as the tideland agent of the State of New Jersey, and the Commissioner of Environmental Protection, as the Head of the Department, on various dates acted to approve and accept the base photomaps with claims overlays of the Newark/Elizabeth Meadows (1 set) and the Hackensack Meadows (36 sets).

3. APPELLANTS' FACTUAL AND LEGAL CONTENTIONS:

All appellants are deemed to adopt the factual and legal contentions as herein stated or of those statements appended below. All appellants, however, shall have the right to supplement, modify, or abandon their contentions by serving and filing notice of such supplementation, modification, or abandonment upon respondent and the trial court on or before February 6, 1976.

This appeal is a test of the legal basis of sovereign ownership of land under the so-called tidelands doctrine announced in *O'Neill v. State Highway Department,* 50 N.J. 307 (1967) and a test of the manner in which that ownership has been asserted by the Natural Resource Council acting as tideland agent for the State of New Jersey. Appellants contend that the State must make reasonable assertions of ownership and that there must be a reasonable

basis in fact and in law before it can be so asserted. The State can not make any claim to land ownership; said claim must be faithful to the law and supported by fact. Of course, the State's "claim" need not be as exhaustively supported by the law and the facts as its PROOF of CLAIM in a quiet title action. Appellants concede that the instant appeal will not decide or quiet title; it will only challenge the validity of the State's technique in laying its claim.

All of the properties in question since the 17th century have been and continue to be upland. They are located considerable distances away from the mean high tide line of the Hackensack River or any of its tributaries. Throughout the past decades the State of New Jersey through its tideland agents and other representatives have continually recognized and acknowledged the premises to be upland and not tideland. The case of *Sisselman v. State Highway Department* No. A769-59 (N.J. Superior Court, Appellate Division, May 1, 1961) precipitated the decision of the State of New Jersey and its representatives to attempt to utilize the tideland doctrine to capture untold acreage of marshes and meadowlands. This has caused intense turmoil. Although prior to *Sisselman, supra,* the doctrine predominately affected the "bank and shore" of watercourses, the attempted expansion of the doctrine has affected the marshes and interior meadowlands which in many cases are heavily vegetated, low-lying, and in some instances improved, frequently located many miles away from the channel of a watercourse. Due to this attempted expansion of the doctrine much litigation has ensued.

On November 6, 1967 the New Jersey Supreme Court decided *O'Neill, supra.* In *O'Neill* the Court agreed to basic rules that would be followed in New Jersey regarding the application of the tidelands doctrine. The Court restricted the sovereign claim to an area within the mean

high tide line boundaries of a given watercourse. As a result of the great turmoil which had occurred the Court also urged the State to do what was feasible to catalog the State's interests and holdings in tidelands. The first attempt to so catalog the State's interests was done by the Coast and Geodetic Survey of the United States (now known as the National Ocean Survey). In 1962 this federal agency, which was recognized by the Supreme Court as the most authoritative source on the subject of tidal boundaries was commissioned by the State Department of Conservation and Economic Development (now known as the Department of Environmental Protection) to establish the mean high tide line in many areas of the river basin. The survey and report demonstrated that other areas need supplementation and additional field work in order to fully define the high tide line. The State of New Jersey, dissatisfied with the extreme limiting of its claims by the survey and reports, abandoned the report and refused to allow the federal agency to complete its study. Thereafter, all further attempts to date have been conducted by the State or its representatives. The New Jersey Legislature passed the Hackensack Meadowland Reclamation and Development Act in 1968 (see *N.J.S.A.* 13:1B-13.1 *et. seq.* and *N.J.S.A.* 13:17-1 *et. seq.*). This Act directed the Department of Environmental Protection to undertake tidal studies and surveys of meadowlands and certify those lands which it finds are State-owned. The Act further directed that upon completion of each separate study and survey the Natural Resource Council shall publish a map clearly indicating those lands designated by the Council as State-owned.

Thereafter the State haphazardly issued what has become known as the Grey and White Map which is more accurately designated as Block and Lot Subdivision in the

Hackensack Meadows, Part I and Part II. This map designated in the manner of a grey coloring the areas which the State purported to have some interest.

However, in *State v. Council in the Division of Resource Development*, No. L-12561-68 (N.J. Super. Ct., L. Div., September 8, 1971, modified 60 N.J. 199 (1972) the Court suppressed this map from being introduced into evidence since it had not been "prepared in accordance with the legislative directions."

On March 14, 1974, the State of New Jersey issued its second attempt to catalog it's claims. The first six of a planned 36 quadrangles which covered the Hackensack Meadowlands District and another map which covers the Newark-Elizabeth Meadows were released. Thereafter, the balance of the 36 quadrangles have been so released.

It is these quadrangles that are the subject matter of this litigation.

Instead of preparing a map, as directed by the Statute, the State of New Jersey issued 36 photobase quadrangles for the Hackensack Meadows. A series of aerial photographs were taken by Mark Hurd Aerial Surveys, Inc. on August 20, 1972. Overlays were then prepared by the direction of the Department of Environmental Protection, in an attempt to designate areas which were alleged to be State owned. Intermediate overlays were prepared, allegedly utilizing old maps and photographs of the same area.

Respecting the present terrain, a novel biological delineation program was attempted. On the basis of early experimentation in England by Dr. Sylvia M. Haslam in 1970 publicized as "The Performance of *Phragmites communis* TRIN. in Relation to Water-Supply". Ann. Bot. 34:867-77. The State attempted to relate vigor of *Phragmites com-*

munis, the dominant plant in the meadowland area, to the color reflectances of the false color infra-red photographs that had been taken by Mark Hurd Aerial Surveys Inc. of the area. In this regard a private company, Earth Satellite Corporation was retained to conduct this experiment. On the basis of this experiment as set forth in "Hackensack Meadows Botanical Delineation Program, Final Report", an alleged mean high tide line was drawn by the State of New Jersey and reflected on their final overlay, which is the subject matter of this litigation.

The botanical delineation is arbitrary and capricious. It has not been validated by correlating the signature groups of the Phragmites with the mean high tide datum in the Hackensack Meadowland area. The line as drawn by the State of New Jersey is contrary to the mean high tide line as designated by the U.S. Coast and Geodetic Survey (National Ocean Survey) and is contrary to the actual mean high tide line in the area.

Some appellants argue that the legal test of State ownership is limited by Federal common law to the beds of navigable streams, rivers, and creeks in accordance with the holding of the United States Supreme Court in *Bonelli Cattle Co. v. State of Arizona* 414 U.S. 313, 94 S. Ct. 517, 38 L.Ed2d 526 (1973). Appellants recognize that if indeed *Bonelli* is the law of the land, the unitary "tidal test" espoused in *O'Neill, supra*, will no longer govern the State's interests. Since the instant mapping project was purportedly based upon the *O'Neill* test, some appellants contend that the State's work is *per se* defective. Furthermore, these appellants argue that the Court must re-direct the mapping project and require the State to assert ownership claims based on the Federal common law concept of sovereign ownership limited to the beds of navigable rivers, creeks, and streams.

Appellants further contend that the State would perpetrate a fraud upon the citizens of this State if it were allowed to assert an ownership claim to interior meadowlands (those meadowlands which do not lie along a defined tidal, navigable, watercourse). Also, appellants contend that the State of New Jersey is estopped (in all cases meeting such standards as this Court should define) from asserting its ownership claims to any lands which were not in 1967 at the time of the decision in *O'Neill v. State Highway Department*, 50 N.J. 307, or prior thereto, under navigable and tidal waters. These appellants are prepared to factually show that the State of New Jersey by its tideland agent from 1869 to the mid-1960s uniformly administered a riparian policy which acknowledged private ownership of said interior meadowlands. Appellants are also prepared to factual show through the State's own riparian records that the State maintained two series of Atlas Sheets which depicted the tidal and navigable watercourses of the State and that all State interest and activity was limited to said areas. Appellants are also prepared to show that the State at various times undertook to force the removal of thousands of persons in unauthorized occupation of State-owned lands and that no effort whatsoever was taken to force the removal of persons in occupation of interior meadowland as opposed to occupation along the defined, tidal, navigable watercourses of the State. Deposition of Messrs. Freeman, Gannon and Scoppetuolo will be offered to prove these contentions.

Appellants contend that the filling-in of interior meadowland prior to the change in the State's riparian policy in the mid-1960's cannot be considered "illegal", in any sense, since it was entirely consistent with the then-applied riparian policy of the State (and in accordance with the holding of the United States Court of Appeals, Third Cir-

cuit, in *United States of America v. Stoeco Homes, Inc.*, No. 73-1805 (D.C. Civil Action No. 1335-72), argued March 14, 1974, decided May 23, 1974) and removes such property from the State's ownership claims as a matter of law (provided, of course, the tide was not re-introduced).

Appellants find acceptable, in all pertinent respects, the photographic work of Mark Hurd Aerial Surveys, Inc., the State's photographic contractor. These appellants have broad general reservations about the accuracy and use of source data used by the State in the mapping project. (These objections are more fully set forth in the deposition record and all depositions are incorporated herein to avoid the need to detail each and every one of these objections).

For example, the so-called 1890 Vermeule Map is a composite of data taken from many sources, most of which the State has not been able to presume let alone establish; some of this data is from a much earlier day (1895 in the case of one creek which is clearly shown to exist on the 1890 map, when, in fact, the creek was filled-in according to established records in 1865). The significance of this is that the 1890 Vermeule Map cannot be accepted as showing the existing scene in 1890 or immediately prior thereto; since the final repeal of the Wharf Act occurred in 1891, a map which accurately showed ground truth in 1890 would be an important source for any ownership claim; the 1890 Vermeule Map cannot be accepted as showing such ground truth. Objections also exist to early vintage photography which was pieced together to form a mosaic; there is no ground control of the photography; there is no overlap such as would provide a stereo-view of the areas being photographed; in the picture-cutting process to make the mosaic it is very easy to cut out too much of a meadowland area (and just as easy to leave too much in—in effect, showing the same meadowland area

twice); this results in an obvious distortion of features. In the 1890 Vermeule Map there was a significant azimuth error made by Vermeule; in addition there are position errors based on admitted discrepancies in angles and distances; this resulted in the extreme difficulty the State's contractor had in preparing an intermediate overlay (which was incorporated in part into the final claims overlays) based on the 1890 Vermeule Map. Positions which have known distances and angle relationships today were shown on 1890 Vermeule but with erroneous distances and angle relationships; as a result, it was necessary to stretch and twist and contract the features shown on the 1890 Vermeule Map to make them fit the 1972 base photomap prepared by Mark Hurd Aerial Surveys, Inc. The result, obviously, is a mislocation of the State's claims to a degree related to the pertinent error in the 1890 Vermeule Map. These appellants contend that such unreliable data should not form the basis for loss of ownership to any meadowlands, and certainly not the enormously-valuable Newark/Elizabeth and Hackensack Meadowlands.

The botanical delineation of the State is totally worthless and should be thrown out by this Court. The program was not scientific; the constraints which the State imposed on its botanical contractor were self-defeating to the purposes for which the work was being done; the goals and results of the project were picked in advance and the work was tailored to produce the pre-determined result and without any regard to an analytical and scientific approach to the problem. *Phragmites communis* is not a tidal indicator; the State delineation program in the Hackensack performed by Earth Satellite Corporation is erroneously based on *phragmites communis;* the State's botanical consultant Dr. Anderson has exhibited glaring and important errors in his botanical knowledge, which were detailed in the deposition of Dr. Elso S. Barghoorn, appellants' botanical expert.

The botanical delineation program was conducted without ground level controls; without the tide guaging of the area being mapped; without study of the historic tidal changes; without study of man-made changes in land and water elevations; without study of the effects of the enormous fresh-water drainage systems of the Passaic and Hackensack Rivers; without study of the effects of rain and winds; without study of ground, water, and air pollutants; without obtaining the elevations throughout the area being mapped, and without other study and investigation more particularly set forth in the depositions. The botanical delineation program is completely unscientific and should be totally rejected by this Court. In addition, the state of science with respect to the use of infrared photography and the photo-interpretative problem associated with signature tones and zonations of vegetation has not developed to the point today where it should be used as a technique for drawing the boundary between public and private lands.

The use of the vigor forms of the true salt marsh grass *spartina alterniflora* (high vigor and low vigor) and the boundary between those forms as being nearly coincident with the line of mean high tide remains uncertain as of the date of this pre-trial conference. The National Ocean Survey (formerly the U.S. Coast & Geodetic Survey) has not, as of this date, given final approval to the so-called Tuckerton Project, nor has the N.O.S. indicated the specific conditions it will attach to any approval beyond indicating certain tentative conditions. These tentative conditions include ground controls and testing, which, if carried forward in any final approval, should form a requirement of this Court to the use of mapping techniques based on the boundary between the vigor forms of *spartina alterniflora*. These appellants accept the professionalism of the N.O.S.

staff in tidal matters and are certainly willing to further refine this statement for the Court and the Respondents, in the event such final approval by N.O.S. is forthcoming before trial on these issues.

These appellants ask this Court to reject as irrevelant the attempt by the State of New Jersey to assert a claim of land ownership in the Newark/Elizabeth Meadows based on statistical data compiled from photo-interpretation of creeks and streams in the Little Egg Harbor Meadow. The State asserts an ownership claim to 10-feet on either bank of filled-in creeks and streams in the Newark/Elizabeth Meadow based on photo interpretation of the boundary between the vigor forms of *spartina alterniflora* in the Little Egg Harbor Meadow (such data allegedly shows that 50% of the time the mean high water line is 10 feet or more from the apparent bank line; at a given point the mean high water line may be co-incident with the apparent bank line or it may be 50 or 100 feet bank in the meadow. Such information is statistical and has no relationship or relevancy to the boundary between public and private lands—even in the Little Egg Harbor Meadow. It certainly has no relevancy to the boundary between public and private land in the Newark/Elizabeth Meadows and it represents another ingenious device by which the State seeks to extend its ownership claims in areas where it lacks sufficient reliable proofs to establish the former tidal boundary because of the filling-in of the lands in question. Such statistical data is absolutely irrelevant to the State's ownership claims in the Newark/Elizabeth Meadows and, beyond that, there is absolutely nothing which the State has done to show there is any similarity between the present day Little Egg Harbor Meadow and the condition of the Newark/Elizabeth Meadow before it was largely filled and destroyed as a natural meadow. There is *no* showing that

the vegetation is the same, the elevations are the same, the drainage systems are the same, the soils are the same, the subsurface conditions are the same, the streams are the same, the streams contours and beds are the same, etc.

The estuarine area of the Hackensack and Newark/Elizabeth Meadows is one of the most complex, if not the most complex, systems of land use and meadow degradation in the United States, and in no sense is it the "pristine" area which the State's contractor Earth Satellite Corporation said it was for purposes of its delineation project. The State has failed to place any significance on the depositions of Jacob Kraft which provide the best possible evidence of the physical conditions which existed in the Hackensack Meadows during the 20th Century. These depositions and other evidence which is more fully set forth in depositions clearly show: 1) tide waters did not reach the area north of Saw Mill Creek until after 1919; 2) waters that were there were from the Hackensack River drainage system and rain waters; 3) transition of this natural meadow area which was not tidally affected was the result of the dredging of more silt from upper Newark Bay and the lower reaches of the Hackensack and Passaic Rivers than was removed in the digging of the Panama Canal (as recorded in the 1916 Report of the New Jersey Harbor Commissioners); 4) the digging of 126 miles of mosquito ditches that were in ground and being maintained by 1922 (as recorded by the records of the Bergen County Mosquito Commission and confirmed in the Kraft depositions); 5) the construction of Berry's Creek Canal at the time of World War I, and other man-caused happenings and conditions. One of the most obvious deficiencies of the State's mapping project is that it totally fails to reconstruct the prior land uses and conditions; in fact, man has caused the transition of the Hackensack

Meadows during the 20th Century from a fresh water marsh to its present condition. The State fails to reconstruct the land uses and conditions of 70 years ago and fails to supply the causative factors for the transition of the area. In the botanical area the State's alleged botanical experts failed to study the Harshberger & Burns botanical work of 1919 in the Hackensack which is the most significant botanical work of its time and location. This 1919 work of Harshberger and Burns clearly shows that the true salt meadow grass *spartina alterniflora* did not exist north of Saw Mill Creek. This critical piece of botanical evidence was completely overlooked; it is of added significance because it provides one further confirmation of the accuracy and reliability of the Kraft recollections. The State conducted, at best, a sketchy and limited historical and scientific investigation and appears to have used the same type of approach it used in its botanical delineation program, namely, it decided first where it wanted to end up and then tailored its investigations to reach the pre-determined destination. This Court should direct the State to do all that is reasonable to reconstruct land uses and conditions in the areas under study and to seek the reasons for the transition of the meadowlands in question from their former condition to their condition today.

These appellants ask this Court to resist the obvious efforts of the State through its mapping project to shift the procedural burden which the New Jersey Supreme Court established in *O'Neill v. State Highway Department;* that burden is, and should remain after the mapping, that the party challenging the existing tideland scene has the burden of establishing by clean and convincing proofs that the former tideland condition is different from what that condition is today. The completion of the mapping project does not shift that burden.

Appellants contend that the base photomaps and claims overlays prepared by the State of New Jersey are not 'maps' in any traditional sense, and it is impossible to locate with the accuracy required for a system of land title records and real estate conveyancing the 'claims' of the State. In many areas, 'claims' are asserted where the area has been filled-in and/or improved. Competent surveyors have refused to guess where the State's claims are located where there is no or insufficient ground evidence of the location of the former tidal creeks or streams. The State has not and apparently does not intend to conduct engineering surveys of the meadowlands. When applications to clear title are filed with the State's tideland agent, the applicant is compelled at applicant's expense to hire an engineer or surveyor to perform this work and pay the costs thereof. Even here such engineer or surveyor may refuse such assignment because of the guesswork involved in locating the State's claim. As a matter of basic fairness, these appellants contend that the State should be required to locate its own claims with the accuracy and precision that the State's system of land records and conveyancing requires. Also as a matter of basic fairness, the State should be required to provide the general public with claims maps which can be purchased in the State of New Jersey and at reasonable prices. At the present time the claims maps are only available by going to, telephoning or writing Mark Hurd Aerial Surveys, Inc. in Minneapolis, Minnesota; at the present time it costs approximately $85.00 to obtain one set of stable-base maps. The State ultimately proposes to produce 1400 sets of maps; the costs of these maps is far beyond the ability of the general public to afford and the price is so high as virtually to deny the public access to the information provided on said maps—and it is no adequate answer that a copy may be obtained for viewing at the court house. This Court should compel the accelera-

tion of the mapping project; the present schedule calls for completion of the mapping project in 1979. For all practical purposes due process of law is suspended until completion of the mapping project because of the nearly total break-down of administrative and judicial processes to provide relief to the citizens of New Jersey. It is imperative that the mapping project be re-directed and completed at the earliest possible date.

4. RESPONDENT'S FACTUAL AND LEGAL CONTENTION:

The State of New Jersey through its tidelands agent the Natural Resource Council in the Department of Environmental Protection contends:

A. The maps in question were prepared, accepted, certified, and filed in a wholly reasonable manner and consistent with the requirement of *N.J.S.A.* 13:1B-13.1 *et. seq.*

B. The burden of challenging the actions of a State administrative agency is upon appellants. Appellants must prove that the State's action in preparing, accepting, approving, and promulgating the maps was arbitrary, capricious, and unreasonable by preponderance of the evidence.

5. DAMAGE AND INJURY CLAIM: NOT APPLICABLE.

6. AMENDMENTS: NONE.

7. LEGAL ISSUES AND EVIDENCE PROBLEMS:

A. What property ownership does the State of New Jersey possess as an incident of its sovereignty under federal common law?

B. Whether the maps published by the State of New Jersey were prepared in accordance with the requirements

of *N.J.S.A.* 13:1B-13.1 *et. seq.* and the principles of *O'Neill, supra.* More specifically:

1. Did the State of New Jersey equally and uniformly take into account:

a. The mean high water line established by the United States Coast and Geodetic Survey?

b. The nature of the vegetation in the meadowlands?

c. Artificial changes in land and water elevation?

d. Historical and scientific data?

2. Are the base photomaps with claims overlays—"maps" within the meaning of *N.J.S.A.* 13:1B-13.4 and *O'Neill, supra*?

3. Has the State completed the title studies and surveys required by *N.J.S.A.* 13:1B-13.1 *et. seq.* with regard to the botanical delineation program and the so-called "hatched areas?"

4. Has the Natural Resource Council "clearly" indicated those lands designated as State-owned pursuant to *N.J.S.A.* 13:1B-13.4?

5. Was the action of the State in the preparation, approval, acceptance, and promulgation of the maps arbitrary, capricious, and unreasonable by a preponderance of the evidence?

6. Is the State of New Jersey estopped from asserting that the properties in question are tidal-influenced and therefore subject to a claim of State-ownership where the State has allegedly acknowledged by various types of documents over the years that same is upland.

7. Whether the maps were promulgated and adopted in accordance with the procedural provisions of *N.J.S.A.* 13:1B-13.1 *et. seq.*

C. Whether the so-called "public trust doctrine" is applicable to the instant appeal?

8. LEGAL ISSUES ABANDONED: NONE.

9. EXHIBITS:

Appellants shall serve upon the State and file with the trial Court at least two weeks prior to trial any exhibits (or copy thereof) or *list* of exhibits to be used at trial. The State shall serve all appellants and file with the trial Court at least two weeks prior to trial a *list* of exhibits to be used at trial.

10. EXPERT WITNESSES:

Limited to those names exchanged by the parties and filed directly with the trial Court on or before January 30, 1976.

11. BRIEFS:

Shall be exchanged by the parties and filed directly with the trial Court in duplicate on or before January 30, 1976.

12. ORDER OF OPENING AND CLOSING:

Inasmuch as there is no administrative record upon which appellants can base their challenge, the Court directs the State to comply with *either* of the following:

1. The State and counsel for appellants will prepare an agreed-upon Statement of Facts which will contain all undisputed facts relating to the action taken by the State in preparing and promulgating the instant maps. Such Statement will include, but shall not be limited to:

a. An outline of all of the various tests, studies, and surveys conducted by the State in preparation of the maps and a concise explanation of each test, study, and survey for the Court's benefit and enlightment.

b. A statement of the procedures employed by the State in approving and promulgating the maps.

This Statement will be served upon all counsel and shall be served upon all counsel and shall be filed directly with the trial Court on or before February 6, 1976.

—OR—

2. The State will present testimony at a preliminary hearing to be conducted on the first day(s) of trial. Said testimony shall establish the following:

a. The number and nature of tests, studies, and surveys conducted by the State in preparation of the maps.

b. The procedure utilized by the State in approving and promulgating the maps.

There will be no cross-examination of the State's witnesses at this preliminary hearing. It is intended solely to educate the Court and to establish a record upon which appellants may base their challenge. The State will not be entirely bound by the scope of the evidence presented and may supplement as it pleases during the trial of the main case.

Upon compliance with ¶12 (1) or (2) above, the opening and closing will be conducted in the usual manner, with appellants' case to proceed first.

13. ANY OTHER MATTERS AGREED UPON/MISCELLANEOUS:

A copy of this Pre-trial order shall be sent to each party or its counsel, if known. The Order shall also be posted in the Bergen County Courthouse, Third Floor. Copies shall be distributed to the Assignment Judges of the coun-

ties of Essex, Hudson, Union, Morris, Passaic for dissemination to interested parties. Copies will also be sent to the Law Libraries of the counties of Hudson, Essex, Morris, Passaic, Union and Bergen for use by counsel. Notice of the promulgation of this Order shall be published in the New Jersey Law Journal for two consecutive weeks in order to afford notice to all interested parties of its existence and availability.

Mr. John Weigel, Esquire, shall serve a Notice of Motion returnable on January 22, 1976 or as soon thereafter as is practicable which will seek partial summary judgment on behalf of appellants on the basis that the State in staking its tideland claim failed to comport with the principles of federal common law as announced in *Bonelli Cattle Co. v. State of Arizona, supra.*

All parties shall on or before January 16, 1976 serve upon all other counsel and file directly with the trial Court a list of proposed witnesses, expert or otherwise; their field of expertise; and a concise summary of their expected testimony. Failure to so serve and file will preclude the production of any omitted witness at the time of trial unless for good cause shown the Court directs otherwise.

14. TRIAL COUNSEL:

FOR THE STATE: Morton Goldfein, Esquire

FOR APPELLANTS: John Weigel, Esquire
Alfred Porro, Esquire
Walter Goldberg, Esquire
John Campo, Esquire
Robert Hartmann, Esquire
Nicholas Martini, Esquire
William Bivona or Vincent Cozzi, Esquire

15. ESTIMATED LENGTH OF TRIAL:

FOUR WEEKS Non-Jury (three or four days per week)

16. TRIAL DATE: February 16, 1976.

17. ALL DISCOVERY WILL BE COMPLETE ON OR BEFORE FEBRUARY 6, 1976.

/s/ Morton Goldfein, Esq.
MORTON GOLDFEIN, ESQ.
JOHN WEIGEL, ESQ.
ALFRED PORRO, ESQ.

/s/ Theodore W. Trautwein, A.J.S.C.
THEODORE W. TRAUTWEIN,
A.J.S.C.

DATE: December 18, 1975

ADDENDUM "F"

EXCERPTS FROM BRIEFS OF PETITIONERS IN THE TRIAL AND APPELLATE COURTS BELOW INDICATING THE MANNER IN WHICH THE FEDERAL QUESTIONS PRESENTED HERE WERE FIRST RAISED

SUPERIOR COURT OF NEW JERSEY

LAW DIVISION, BERGEN COUNTY
DOCKET NO. L-6106-75
APPELLATE DOCKET NO. A-3311-72
DOCKET NO. 98-0067

CITY OF NEWARK; CITY OF ELIZABETH; ESTHER G. BERTONI, et al.; and NEW JERSEY LAND TITLE INSURANCE ASSOCIATION,
Appellants,

vs.

NATURAL RESOURCE COUNCIL in the DEPARTMENT OF ENVIRONMENTAL PROTECTION, et al.,
Respondents.

APPELLANTS' PROPOSED FINDINGS AND CONCLUSION

JOHN R. WEIGEL
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(609) 452-1166

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SUPERIOR COURT OF NEW JERSEY

APPELLATE DIVISION

DOCKET NO. A-3311-72

CITY OF NEWARK; CITY OF ELIZABETH; ESTHER G. BERTONI, et al.; and NEW JERSEY LAND TITLE INSURANCE ASSOCIATION

Appellants,

vs.

NATURAL RESOURCE COUNCIL in the DEPARTMENT OF ENVIRONMENTAL PROTECTION, et al.,

Respondents.

Civil Action—On Appeal from the Natural Resource Council Action of June 13, 1973 (and sundry other dates) in Accepting for Filing State Ownership Maps Pursuant to N.J.S.A. 13:1B-13.1 et seq.

BRIEF FOR APPELLANTS

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POINT II: The State of New Jersey is estopped from asserting any sovereign ownership claim to interior Meadowlands (those Meadowlands which lie outside the beds of well-defined Tidal Waterways) because it has acknowledged for 300 years that those interior Meadowlands are privately owned. Additionally, the fourteenth amendment to the *United States Constitution* bars the State from retroactively expanding its sovereign ownership claims into those interior Meadowlands 70

POINT III: Each mapping technique employed by the State must possess a high degree of accuracy and reliability for demarcating on the ground the boundary between public and private lands and, as used by the State, must produce a claim which is clear and certain and likely to result in a judgment in the State's favor in any quiet title action 81

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POINT IV: The claims maps published by the State are legally deficient for the following principal reasons:

(1) The State has substituted a type-of-vegetation line based on the pandemic weed *phragmites communis* for the mean high water line to map its ownership claims in many areas of the Hackensack Meadowlands and without an adequate showing that there is any correlation between those two lines

(2) The State has added a claim of 10 feet on either side of the banks (for a total added claim of 20 feet) of filled-in creeks and streams in the Newark/Elizabeth Meadows based on extrapolated type-of-vegetation data from the Little Egg Harbor Meadows. Even if such data were valid for the Little Egg Harbor Meadows to locate the mean high water line there, it is totally irrelevant to the mapping of the State's ownership claims in the Newark/Elizabeth Meadows

(3) The State has almost totally ignored the man-made changes in land and water elevations which are largely responsible for the present tideland scene in the Hackensack Meadowlands and the Newark/Elizabeth Meadowlands 90

Conclusion 136

ADDENDUM "G"

TRIAL COURT EXHIBIT A-188, NEW JERSEY BUREAU OF NAVIGATION DIRECTIVE NO. 103, DATED SEPTEMBER 26, 1961

DEPARTMENT OF CONSERVATION AND
ECONOMIC DEVELOPMENT DIVISION
OF RESOURCE DEVELOPMENT

BUREAU OF NAVIGATION

137 E. State Street
Trenton 25, New Jersey

DIRECTIVE NO. 103

TO: Navigation Personnel

FROM: Peter J. Gannon, Chief

SUBJECT: Meadowland Claims

A listing of parcels of property in which the State of New Jersey appears to have an interest in title because of Tidal Waterways has been prepared by the Navigation Bureau Staff and is now part of the office records.

In relation to inquiries pertaining to the list, or questions concerning claims of the Navigation Bureau, the following procedure shall be observed.

The Navigation Bureau does not claim any interest on behalf of the State in any lands unless atlas sheets, maps, aerial photos, or other records in our office show that such lands front on or are crossed by waterways now or formerly flowed by tide water and, if so, then the Navigation Bureau only makes claim on behalf of the State

to the extent of the frontages on said waterways and to the extent of the present or former flow of tidal waters in said waterways as shown on atlas sheets, maps, aerial photos or other records in this office.

Staff members shall be governed accordingly.

/s/ Peter J. Gannon
PETER J. GANNON, Chief
Bureau of Navigation

PJG/fj

ADDENDUM "H"

TRIAL COURT EXHIBIT A-299 CONSTITUTING A SUMMARY OF THE TESTIMONY OF THE LATE PETER J. GANNON, CHIEF OF THE NEW JERSEY BUREAU OF NAVIGATION, DATED JUNE 11, 1976

Honorable Theodore W. Trautwein
Bergen County Court House
Hackensack, New Jersey 07601

Re: City of Newark, et al. v. Natural Resource Council in the Department of Environmental Protection, et al.; Superior Court of New Jersey, Appellate Division, Docket No. A-3311-72 Law Division Docket No. L-6106-75)

Dear Judge Trautwein:

The purpose of this letter is to comply with your direction that I identify to you and the State of New Jersey those portions of the depositions of the late Peter J. Gannon on which I place particular reliance.

Depositions of the late Mr. Gannon were taken in the presence of a representative of the Office of the Attorney General on April 24, 1972 (Exhibit A-173), May 2, 1972 (Exhibit A-174), and May 11, 1972 (Exhibit A-175). Mr. Gannon was born on March 23, 1899 and was a licensed New Jersey engineer and architect; he became Assistant Director of the State Board of Commerce and Navigation in 1939 and was Chief of the Navigation Bureau (predecessor to the Natural Resource Council was the State Board and the Navigation Bureau was its staff) from 1949 until his retirement in 1969. See A-173, pages 7 and 8.

I have reviewed the three depositions and have prepared the summary which follows:

DEPOSITION OF APRIL 24, 1972

Pages 9 through 11:

Description of Testimony—Mr. Gannon grew up in Jersey City and lived on Westside Avenue which was "only a short walk" from the meadows; as a child he played in the meadows particularly from Communipaw Avenue to where the Pulaski Skyway is now located; the meadow was "usually dry, very seldom wet. There would be fires there in the summer, some of that area"; in later years while working for the Public Works Administration Mr. Gannon "covered the entire state" and observed that the meadowlands are "usually . . . dry. They are little meandering streams through the meadowlands and mosquito ditches artificially dug . . ."

Pages 17 & 18, 22:

Description of testimony—". . . the entire meadowlands from the confluence of the Hackensack and Passaic Rivers all the way up to Little Ferry" were "usually dry except for the mosquito ditches and a few meandering creeks" in 1925; in the period from 1925 to 1939 these meadowlands were "dry, they weren't flowed by normal high tides. Storm tides, yes. Drainage areas from either side of the hills, from the North Bergen side to the side of Lyndhurst. It all drained all the storm water and industrial waste came down in that meadowland".

Pages 26 to 40:

Description of testimony—Mr. Gannon was supervisor of the riparian operations of the Bureau of Navigation and he conducted a "general examination of the applications that came in"; quitclaim deeds were very rarely given in the 1940s and 1950s and they would be given when "there was some creek that showed on an old map that at one time or another was a tidal creek" but had become filled in; the basic working record of the Navigation Bureau was the atlas sheet which "were prepared in the old Board of Commerce and Navigation" and they showed "the high water line"; in processing an application for a riparian grant the applicant's engineering survey would be compared with the atlas sheet, a field inspection would be made if required, if a stream off the main river was involved maps prepared by the county engineer or the municipal engineer were studied, the high water line of the applicant's survey was checked and verified until the Bureau of Navigation was satisfied it was correct and only then would the riparian grant issue based on that high water line; field checks were made and Mr. Gannon made such checks himself; the high water line on the atlas sheets was the same as a mean high water line; the practices employed in checking and reviewing the high water line as shown of the applicant's engineering survey were applied statewide and did not vary during the time Mr. Gannon was with the Bureau of Navigation from 1939 to 1969.

Pages 40 & 41:

Description of testimony—Prior to 1960 and the Sisselman case, Mr. Gannon never processed an applica-

tion for a quitclaim deed to interior meadowland and processed quitclaims only where there was evidence of an old creek or stream which was filled in; if the Bureau of Navigation received an application for a quitclaim deed to interior meadowland where there was no record of an old creek or stream, the Bureau advised the applicant "we had no jurisdiction"

Page 42:

Description of testimony—When he stated "we had no jurisdiction," Mr. Gannon meant "we had no ownership"; Mr. Gannon said he was authorized to make such statements that the State "had no ownership" and that the Council never told him to stop doing it prior to the Sisselman case

Pages 43 & 44:

Description of testimony—"It was run of the mill routine" to send out letters saying the State had no jurisdiction to areas where there was no defined tidal watercourse; such matters were discussed at Council meetings and they were "generally accepted"

Page 45:

Description of testimony—Mr. Gannon, as Chief of the Bureau of Navigation, regularly met with the Council

Pages 48 to 50:

Description of testimony—When Mr. Gannon first came to work for the Navigation Bureau in 1939, the Council was a bipartisan board of eight members, four Republicans and four Democrats; the Council was subsequently expanded to 12 members and a

Navigation Committee of three or four was formed "because it was obvious that in the time that we had for the staff meetings with the Council we could never get it over to twelve men"; the Navigation Committee worked with the staff and then the Navigation Committee reported to the full 12 member Council which "usually accepted" it recommendations; under the old bipartisan Council of eight members, commissioners were appointed on a geographic basis and when an application came in it would be submitted to the commissioner from a particular area if it was other than routine; the commissioner would make an inspection and his inspection usually related to the price to be charged the applicant

Page 51:

Description of testimony—there was a Price Book in the Bureau of Navigation which contained a reduced scale map of most of the streams of the State and the prices charged for grants

Pages 55 & 56:

Description of testimony—the pricing of riparian grants was based on "front footage" or "so many feet measured along the bulkhead line"

Page 64:

Description of testimony—Mr. Gannon regularly met with the Navigation Committee

Pages 82 to 86:

Description of testimony—The atlas sheets were drawn according to the dates on them and are signed by the Chief Engineer of the Bureau of Navigation and also

by the draftsmen who drew them; the Council would approve changes on specific atlas sheets when "new exterior lines (were) established"; Mr. Gannon does not know how the atlas sheets in use when he came to work in the Bureau in 1939 were prepared, but atlas sheets were prepared during the tenure of Mr. Gannon as Chief of the Bureau of Navigation and they were prepared "from the various maps of the counties or maps submitted by engineers"; maps of U.S. Coast & Geodetic Survey were used by the Bureau of Navigation as a source for drawing rivers on the atlas sheets; if there were differences in the configuration of a stream as shown on a county map and as shown by the U.S. Coast & Geodetic Survey, the Bureau of Navigation would research it and "find out which was accurate and use it" in depicting the stream on the State's atlas sheets

Page 87:

Description of testimony—the significance of the pierhead/bulkhead line on the atlas sheets is that it "is the extent to which the conveyance could be made"

Pages 88 & 89:

Description of testimony—the solid uninterrupted line which is on the atlas sheets of the Hackensack River is the "high water line of the river"; "high water line" was interpreted by the Bureau of Navigation as "mean high water line" and they are one and the same for purposes of the State's atlas sheets

Page 91:

Description of testimony—with respect to the whole series of atlas sheets, the solid line along the water-

courses as depicted on the atlas sheets is the mean high water line of the watercourse; this mean high water line appears on all riparian grants issued by the State and on the riparian stream survey made by Arthur Hobby in 1930s

Page 93:

Description of testimony—most, but not all, of the riparian grants have been plotted on the atlas sheets

Pages 97 to 99:

Description of testimony—Mr. Gannon compiled a listing of all the riparian grants along the Hackensack River (grants dated as early as 1888 and 1889) from the official records of the Bureau of Navigation to refute the claim of some that "the high water line, former high water line, was somewhere back along the foothills of Lyndhurst and North Bergen, which I told many people in the Department that I didn't believe in that theory at all"

Page 105

Description of testimony—Mr. Gannon and Mr. Scoppetuolo prepared "a list of properties from the various municipalities in which the State might have an interest" and reported to the Commissioner on August 15, 1961 (this is the list which was distributed to lawyers, title companies, and others and never recalled)

Page 108:

Description of testimony—if a property did not appear on the August 15, 1961 list, the conclusion to be drawn

is "that the State, that we would have no interest in it"

Pages 110 & 111:

Description of testimony—Mr. Scoppetuolo, with Mr. Gannon's approval, put out a letter to anyone inquiring about the State's tideland interest. This letter gave the following important definition to "formerly flowed" or "former flow":

> "The words 'formerly flowed' and 'former flow' mean lands over which the flow of tidewater has changed or ceased due to causes other than natural causes."

Page 111:

Description of testimony—The interpretation placed by Mr. Scoppetuolo on the words "formerly flowed" and "former flow" was that interpretation given by the Bureau of Navigation from at least 1939 (when Mr. Gannon was first employed) until the time of the Sisselman case in 1960 and 1961

Page 112:

Description of testimony—The letter the Bureau of Navigation sent out in the early 1960s (after the Sisselman decisions at trial and on appeal) in answer to a citizen's inquiry about the State's ownership claims stated:

> "The Navigation Bureau does not claim any interest on behalf of the State in any lands unless atlas sheets, maps, aerial photos, or other records in our office show that such lands front on or are crossed by waterways now or formerly flowed by tidewater;

and, if so, then the Navigation Bureau only makes claim on behalf of the State to the extent of the frontages on said waterways and to the extent of the present or former flow of tidal waters in said waterways as shown on atlas sheets, maps, aerial photos or other records in this office. The words 'formerly flowed' and 'former flow' mean lands over which the flow of tidewater has changed or ceased due to causes other than natural causes. The burden of proving natural change or cessatation of flow of tidewater rests upon the proponents thereof."

Page 114:

Description of testimony—The Council was aware that the listing of properties and the letter of Mr. Scoppetuolo with the definitions and explanation of the State's ownership interest was being sent out to the citizens of the State who inquired in the 1960s

Page 123:

Description of testimony—The State of New Jersey sponsored a riparian stream survey of the State which was conducted by the Works Progress Administration (W.P.A.) from 1936 to 1938. Sheets #9 and #10 depict the Hackensack River and this riparian stream survey delineates the mean high water line of the watercourse; according to Mr. Gannon, these riparian stream surveys of the State done by the W.P.A. (by Arthur Hobby) are "very, very important maps"

Page 125:

Description of testimony—Mr. Gannon, as Chief of the Bureau of Navigation, found the riparian stream surveys of the W.P.A. prepared for the State to be

"very reliable" with respect to the high water line (Mr. Gannon stated that there are field books which accompany the riparian stream surveys)

* * *

DEPOSITION OF MAY 2, 1972

Pages 199 & 200:

Description of testimony—as the tideland controversy developed in the 1960s, the State began using the marsh symbols of the 1880s and 1890s Vermeule maps. The State was only applying the Vermeule marsh symbols for its claims in North Jersey (Bergen, Hudson, and Essex Counties) and was asserting a different basis for claim in South Jersey. "They seemed to have their sights set for the Hackensack Meadows. When I say 'they,' I mean the administration, whoever was in charge of the situation at the time. Of course, I did raise a question about how can you apply this just to the Hackensack Meadows when down through Ocean and Atlantic, Cape May County, that same thing exists"; Mr. Gannon got no answer to his question.

Pages 200 & 201:

Description of testimony—In "Bergen, Hudson, Essex and part of Union, along Newark Bay" the State "claimed anything . . . marked as tidemarsh and as shown on this bound Atlas book that we are going to get as marshland"; this rule "wasn't applied in other parts of the State"; in the other parts of the State the Council continued to use the mean high water line as shown on the Atlas Sheets of the State as the basis for its riparian grants

Page 208:

Description of testimony—Mr. Gannon was the person who recommended that the U.S. Coast & Geodetic Survey be engaged to do an "up-to-date survey . . . to establish the high water line of the Hackensack River from the confluence of the Passaic River, Newark Bay, up to Little Ferry . . ." U.S. Coast & Geodetic Survey did work in 1962 to 1963 to delineate the mean high water line of the Hackensack River and certain of its tributaries

Pages 225 & 226:

Description of testimony—the Administration told the Navigation Bureau to use the tidemarsh symbol on Vermeule's 1890 Map for State ownership claims in the areas depicted on that map (Bergen, Hudson, Essex, and parts of Passaic and Union Counties); the public was being given at the same time the listing of properties prepared by Mr. Gannon and Mr. Scoppetuolo and was not being told about the use of the Vermeule tide marsh symbol as a basis for State ownership claims (until the publication of the "gray and white map" on January 14, 1970); in one of his memos to the Director Mr. Gannon during this time period stated "it was just as necessary for the State to protect these poor people up there as it was to assert claims"; nothing was done by his superiors in response to Mr. Gannon's memo

Pages 229 to 231:

Description of testimony—the 1900 forestation map of the New Jersey Geological Survey (John C. Smock, State Geologist, and C.C. Vermeule, Topographer)

shows the Hackensack Meadows area to have 60 to 80 acres of forest per 100 acres of land

Page 242:

Description of testimony—riparian case file #3473 was marked as an exhibit

Page 246:

Description of testimony—riparian case file #7877 was marked as an exhibit

Page 249:

Description of testimony—the May 24, 1900 riparian grant to the Morris & Essex Railroad was marked as an exhibit

Pages 253 & 254:

Description of testimony—the January 21, 1924 riparian grants to the Morris & Essex Railroad (riparian case files #1664A, 1664B, 1664C, and 1664D) was marked as an exhibit

Page 259:

Description of testimony—the 1928 riparian grant to Metropolitan Terminal Incorporated (riparian case file #1714 and 1714A) was marked as an exhibit

Page 259:

Description of testimony—the 1929 riparian grant to Seaboard By-Products Coke Co. (riparian case file #2697 and 2697A) was marked as an exhibit

* * *

DEPOSITION OF MAY 11, 1972

Page 298:

Description of testimony—as to the origin of the $1,000 per acre charged for a quitclaim deed, Mr. Gannon stated: "Originally we were going to charge—the Council, it decided to charge $1,000 an acre for the bed of creeks, and yet give the applicant a quitclaim grant by metes and bounds description of all the property applied for, because the original intent was a $1,000 per acre for tidal creeks and not the entire meadowlands"

Pages 309 & 310:

Description of testimony—Mr. Gannon commented on the expanding State ownership claims during the 1960s as follows: ". . . all the training that I received from others and from the various attorney generals was that the State owned to mean high tide and no more. I have already testified that to my knowledge the Hackensack Meadows were never flowed by mean high tide. To be flowed by mean high tide it has to be flowed twice in 24 hours of ordinary tide, not storm tides, hurricane tides or anything else"

* * *

The following Appellants' Exhibits were among those marked in the depositions of the late Mr. Gannon and each should be reviewed in connection with the above summary:

A-17
A-25
A-33 through A-53

A-63
A-64
A-186 through A-194

Respectfully yours,

/s/ John R. Weigel
JOHN R. WEIGEL

JRW:m
cc: Morton J. Goldfein, Esq.
William C. Rindone, Jr., Esq.
Alfred A. Porro, Jr., Esq.